Final Report

May 1989

EVT 30-89

TRANSPORTABILITY TEST OF H1571 HANDLING DEVICE AND H1572 KIT

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PREPARED FOR:
U.S. Army Armament, Munitions and Chemical Command
ATTN: AMSMC-MAY-WA(D)
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EVALUATION DIVISION
SAVANNA, ILLINOIS 61074-9639

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19. ABSTRACT (*Continue on reverse if necessary and identify by block number*)

The U.S. Army Armament, Munitions and Chemical Command (AMCCOM) tasked the U.S. Army Defense Ammunition Center and School (USADACS) to perform the necessary transportability tests to develop tiedown procedures in the 2-1/2-ton cargo truck and the M871 22-1/2-ton semitrailer. Both vehicles were subjected to the USADACS five-step road hazard course while loaded with the H1571 Handling Device and H1572 Kit.

The H1571 Handling Device was instrumented with two triaxial accelerometers and one triaxial accelerometer was located on the cargo floor of each vehicle during the testing.

Using the 5,000-pound capacity web strap tiedown assemblies, restraint methods were successfully tested with the H1571 Handling Device and H1572 Kit positioned either laterally or longitudinally in the 2-1/2-ton cargo truck and the M871 semitrailer. Two web strap tiedown assemblies over the top of the H1571 Handling Device were adequate to restrain the item in every test. One web strap tiedown assembly over the top of the H1572 Kit was adequate to secure the item in every test.

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U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL
Evaluation Division
Savanna, IL 61074-9639

REPORT NO. EVT 30-89

TRANSPORTABILITY TEST OF

H1571 HANDLING DEVICE AND H1572 KIT

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PART 1

GENERAL

A. INTRODUCTION

The U.S. Army Defense Ammunition Center and School (USADACS) was tasked by the U.S. Army Armament, Munitions and Chemical Command (AMCCOM) to conduct the necessary transportability tests to develop tiedown procedures securing the H1571 Handling Device and H1572 Kit in the 2-1/2-ton cargo truck and M871 semitrailer. Both vehicles were subjected to the USADACS road hazard course while loaded with the H1571 Handling Device and H1572 Kit.

Each end of the H1571 Handling Device inside the wooden crate was instrumented with two triaxial accelerometers and one triaxial accelerometer was positioned on the cargo floor of each vehicle during the testing.

B. AUTHORITY

The test was accomplished in accordance with mission responsibilities delegated by AMCCOM. Reference is made to the following:

1. Change 4, 4 October 1974, to AR740-1, 23 April 1973, Storage and Supply Activity Operation.

2. AMCCOM-R 10-17, Mission and Major Functions of USADACS, 13 January 1986.

3. Wire, AMCCOM, AMSMC-MAY-WA(D), to AMCCOM, AMSMC-TMD, 15 May 1989, subject: Transportation Test of H1571 Stand and H1572 Kit.

C. OBJECTIVE

The objective of this test was to develop/evaluate tiedown procedures for the H1571 Handling Device and H1572 Kit on the cited vehicles.

D. CONCLUSIONS

1. Two 5,000-pound capacity web strap tiedown assemblies over the top of the H1571 Handling Device wooden box were adequate to restrain the box in every test.

2. A single 5,000-pound capacity web strap tiedown assembly over the top of the metal carrying case containing the H1572 Kit was adequate to restrain the case in every test.

3. The outside wooden skids under the wooden box containing the H1571 Handling Device were beginning to separate from the floor of the box during the final test.

E. RECOMMENDATION

It is recommended an improved method of attaching the wooden skids to wooden box containing the H1571 Handling Device be developed.

F. APPROVAL

As tested, the tiedown procedures for the H1571 Handling Device and H1572 Kit are acceptable for on/off highway transport in/on tactical vehicles.

PART 2

ATTENDEES

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PART 3

TRANSPORTABILITY TESTING

Five separate road testing steps are required as identified herein:

1. Step No. 1 This step provides for the specimen load to be driven over a 200-foot-long segment of concrete paved road which consists of two series of railroad ties projecting 6 inches above the level of the road surface. This hazard course is traversed two times and repeated per Step No. 4.

a. The first series of ties is spaced on 8-foot centers and alternately positioned on opposite sides of the road centerline for a distance of 50 feet.

b. Following the first series of ties, a paved roadway of 75 feet separates the first and second series of railroad ties.

c. The second series of ties is alternately positioned similarly to the first, but spaced on 10-foot centers for a distance of 50 feet.

d. The specimen load is driven across the hazard course at speeds that will produce the most violent vertical and side-to-side rolling reaction obtainable in traversing the hazard course (approximately 5 mph).

2. Step No. 2 This step consists of 30 miles of travel over available rough roads consisting of gravel, concrete and asphalt, curves, cattle gates, and stops and starts.

3. Step No. 3 This step provides for the specimen load to be subjected to three full air brake stops while traveling in the forward direction and one in the reverse direction while traveling down a 7 percent grade. The first three stops are speeds of 5, 10, 15 mph while the stop in the reverse direction is of approximately 5 mph.

4. Step No. 4 This step consists of a repeat of that identified in Step No. 1 above.

5. Step No. 5 This step provides for the specimen load to be driven over a 300-foot-long segment of concrete paved road which has rails spaced on 26-1/2-inch centers protruding 2 inches above the road surface. The specimen load is driven at the speed which will produce the most violent response.

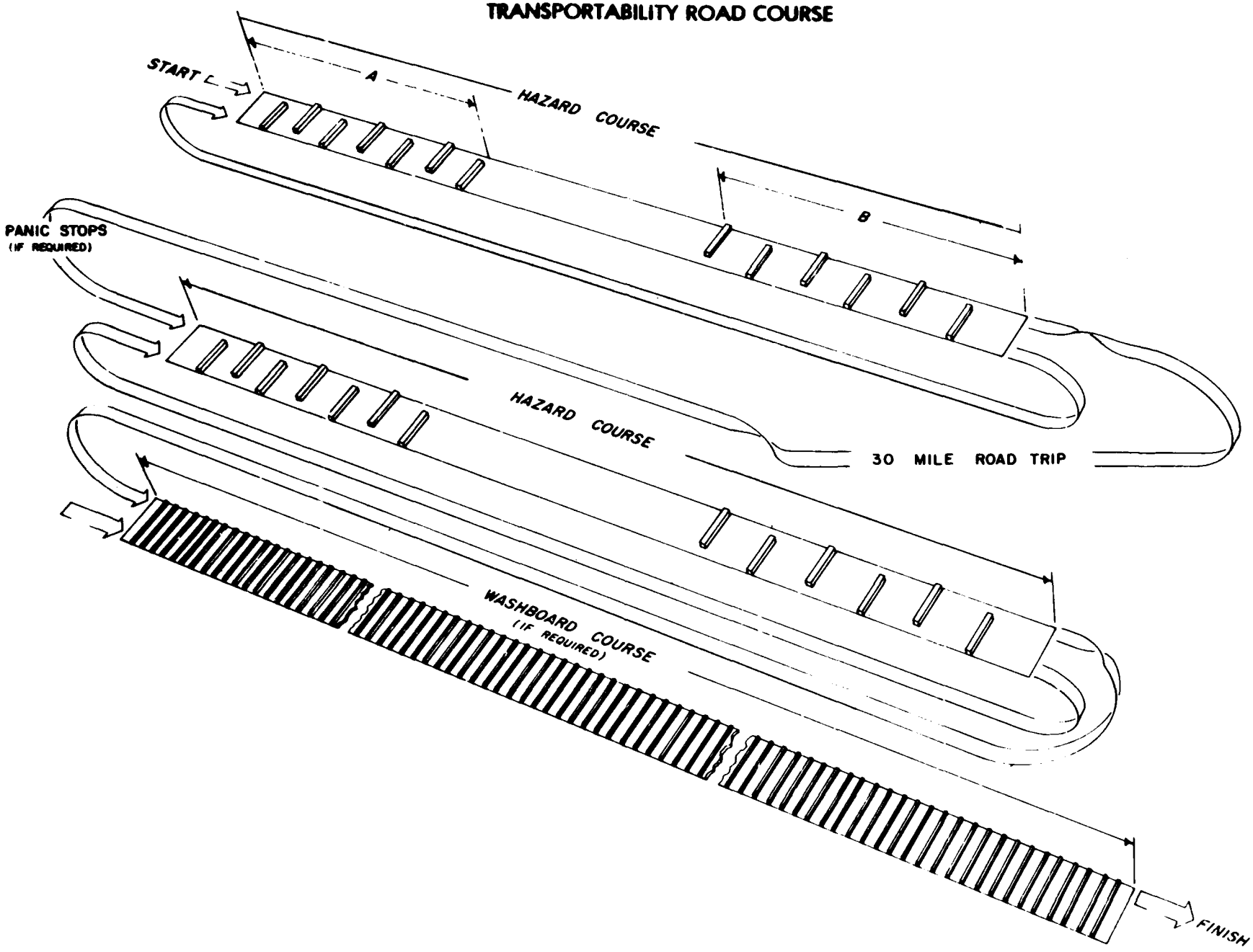
Note: Step Nos. 3 and 5 may be deleted at the discretion of the test conductor.

INSPECTIONS AND DATA COLLECTION

At selected intervals during testing, thorough inspections of the specimen loads were made by technically proficient personnel to collect data on the specimen load and equipment resulting from above load test steps. This data is recorded in Part 4 following.

US ARMY DEFENSE AMMUNITION CENTER AND SCHOOL

TRANSPORTABILITY ROAD COURSE



PART 4

TEST SPECIMENS AND RESULTS

TEST SPECIMEN AND RESULTS

A. PRETEST DETERMINATIONS

1. The H1571 Handling Device was air shipped from Sandia National Laboratories in Livermore, CA, to Chicago, IL, and trucked from Chicago to USADACS. Upon arrival at USADACS, the H1571 Handling Device, including the wooden box containing the H1571 Handling Device, were inspected for damage. The only noted damage was the missing center skid under the wooden box containing the H1571 Handling Device. The center skid was replaced prior to any transportability testing by USADACS personnel. Although the wooden skid was replaced, the bracket securing the box lid with box base was not replaced.

2. Instrumentation of all test loads included the mounting of a triaxial accelerometer on each end of the H1571 Handling Device inside of the wooden box. One triaxial accelerometer was also mounted on the cargo floor of each vehicle.

B. SYNOPSIS OF TEST NO. 1

1. In Test No. 1, the H1571 Handling Device was positioned with its long dimension in the direction of the 2-1/2-ton cargo truck's length. Loaded near the rear of the cargo bed, two web strap tiedown assemblies over top the container (wooden box) were used to secure the H1571 Handling Device in the 2-1/2-ton cargo truck.

2. The H1572 Kit was positioned forward of the H1571 Handling Device with its long dimension in the direction of the 2-1/2-ton cargo truck's width. One web strap tiedown assembly over top the H1572 Kit secured the item.

3. While the total movement of the H1571 Handling Device was limited to less than 1/2-inch, the H1572 Kit did not move any measurable amount. This tiedown method is approved for on/off highway movement of the H1571 Handling Device and the H1572 Kit on the 2-1/2-ton cargo truck.

ROAD TEST DATA

TEST NO. 1 DATE 19 May 1989

TEST SPECIMEN H1571 Handling Device positioned lengthwise and H1572 Kit positioned crosswise on the 2-1/2-ton cargo truck.

PASS 1-A OVER FIRST SERIES OF TIES 6.00 SEC 5.68 mph

PASS 1-B OVER SECOND SERIES OF TIES 5.70 SEC 5.98 mph

REMARKS: H1571 Handling Device moved forward 1/4-inch.

PASS 2-A OVER FIRST SERIES OF TIES 6.90 SEC 4.94 MPH

PASS 2-B OVER SECOND SERIES OF TIES 6.90 SEC 4.94 MPH

REMARKS: No movement.

30 MILE ROAD TEST: No movement.

PANIC STOP TEST: No movement.

PASS 3-A OVER FIRST SERIES OF TIES 6.90 SEC 4.94 MPH

PASS 3-B OVER SECOND SERIES OF TIES 6.30 SEC 5.41 MPH

REMARKS: No movement.

PASS 4-A OVER FIRST SERIES OF TIES 6.45 SEC 5.29 MPH

PASS 4-B OVER SECOND SERIES OF TIES 6.30 SEC 5.41 MPH

REMARKS: No movement.

WASHBOARD COURSE: H1571 Handling Device moved forward 1/8-inch.

RESULTS FROM ROAD HAZARD TESTING ON THE H1571 HANDLING DEVICE & H1572 KIT ON 2-1/2 TON TRUCK IN CONFIGURATION #1
DATE: 19 MAY 1989

TAPE CHANNEL 1 : LONGITUDINAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.08	54.59	.0024
PASS 1, COURSE B	5.00	.07	43.48	.0019
PASS 2, COURSE A	5.00	-.06	45.83	.0016
PASS 2, COURSE B	5.00	.05	49.45	.0011
PASS 3, COURSE A	5.00	.07	54.19	.0023
PASS 3, COURSE B	5.00	-.06	105.17	.0035
PASS 4, COURSE A	5.00	.07	56.24	.0020
PASS 4, COURSE B	5.00	.07	43.52	.0019
WASHBOARD COURSE	5.00	.10	56.04	.0032

TAPE CHANNEL 3 : LATERAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.98	68.93	.0374
PASS 1, COURSE B	5.00	.68	57.09	.0232
PASS 2, COURSE A	5.00	-.98	97.17	.0557
PASS 2, COURSE B	5.00	-.82	138.28	.0543
PASS 3, COURSE A	5.00	.84	94.02	.0510
PASS 3, COURSE B	5.00	-.84	93.05	.0487
PASS 4, COURSE A	5.00	.96	117.08	.0437
PASS 4, COURSE B	5.00	-.66	103.90	.0286
WASHBOARD COURSE	5.00	.75	31.50	.0091

TAPE CHANNEL 4 : VERTICAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.12	68.67	.0056
PASS 1, COURSE B	5.00	**-3.39	25.77	.0446
PASS 2, COURSE A	5.00	.10	45.25	.0023
PASS 2, COURSE B	5.00	-.08	45.74	.0018
PASS 3, COURSE A	5.00	-.13	54.67	.0043
PASS 3, COURSE B	5.00	.12	47.91	.0032
PASS 4, COURSE A	5.00	.13	45.36	.0033
PASS 4, COURSE B	5.00	.12	64.11	.0048
WASHBOARD COURSE	5.00	.21	66.20	.0066

** ERRONEOUS DATA

TAPE CHANNEL 5 : LONGITUDINAL ACCELERATION ON REAR

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.43	54.42	.0142
PASS 1, COURSE B	5.00	.38	45.30	.0117
PASS 2, COURSE A	5.00	-.28	102.39	.0133
PASS 2, COURSE B	5.00	.27	51.11	.0081
PASS 3, COURSE A	5.00	.33	82.78	.0159
PASS 3, COURSE B	5.00	.29	43.72	.0067
PASS 4, COURSE A	5.00	-.36	57.08	.0134
PASS 4, COURSE B	5.00	-.35	67.50	.0141
WASHBOARD COURSE	5.00	.57	28.91	.0095

TAPE CHANNEL 7 : LATERAL ACCELERATION ON REAR

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.73	50.43	.0206
PASS 1, COURSE B	5.00	.46	52.29	.0149
PASS 2, COURSE A	5.00	-.66	71.89	.0266
PASS 2, COURSE B	5.00	-.52	75.58	.0225
PASS 3, COURSE A	5.00	-.57	65.80	.0220
PASS 3, COURSE B	5.00	-.57	134.14	.0337
PASS 4, COURSE A	5.00	-.66	63.87	.0228
PASS 4, COURSE B	5.00	.54	72.09	.0202
WASHBOARD COURSE	5.00	.52	37.30	.0083

TAPE CHANNEL 8 : VERTICAL ACCELERATION ON REAR

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.98	81.98	.0427
PASS 1, COURSE B	5.00	1.03	68.20	.0404
PASS 2, COURSE A	5.00	.71	67.85	.0261
PASS 2, COURSE B	5.00	.58	63.45	.0226
PASS 3, COURSE A	5.00	.77	66.53	.0291
PASS 3, COURSE B	5.00	.78	74.07	.0343
PASS 4, COURSE A	5.00	.87	71.14	.0365
PASS 4, COURSE B	5.00	.92	70.12	.0365
WASHBOARD COURSE	5.00	1.38	65.67	.0498

TAPE CHANNEL 9 : LONGITUDINAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.27	77.70	.0138
PASS 1, COURSE B	5.00	.33	58.43	.0107
PASS 2, COURSE A	5.00	.21	39.24	.0039
PASS 2, COURSE B	5.00	-.20	123.27	.0166
PASS 3, COURSE A	5.00	.23	125.11	.0200
PASS 3, COURSE B	5.00	.25	108.18	.0160
PASS 4, COURSE A	5.00	.26	73.53	.0106
PASS 4, COURSE B	5.00	.35	68.42	.0137
WASHBOARD COURSE	5.00	-.38	49.63	.0120

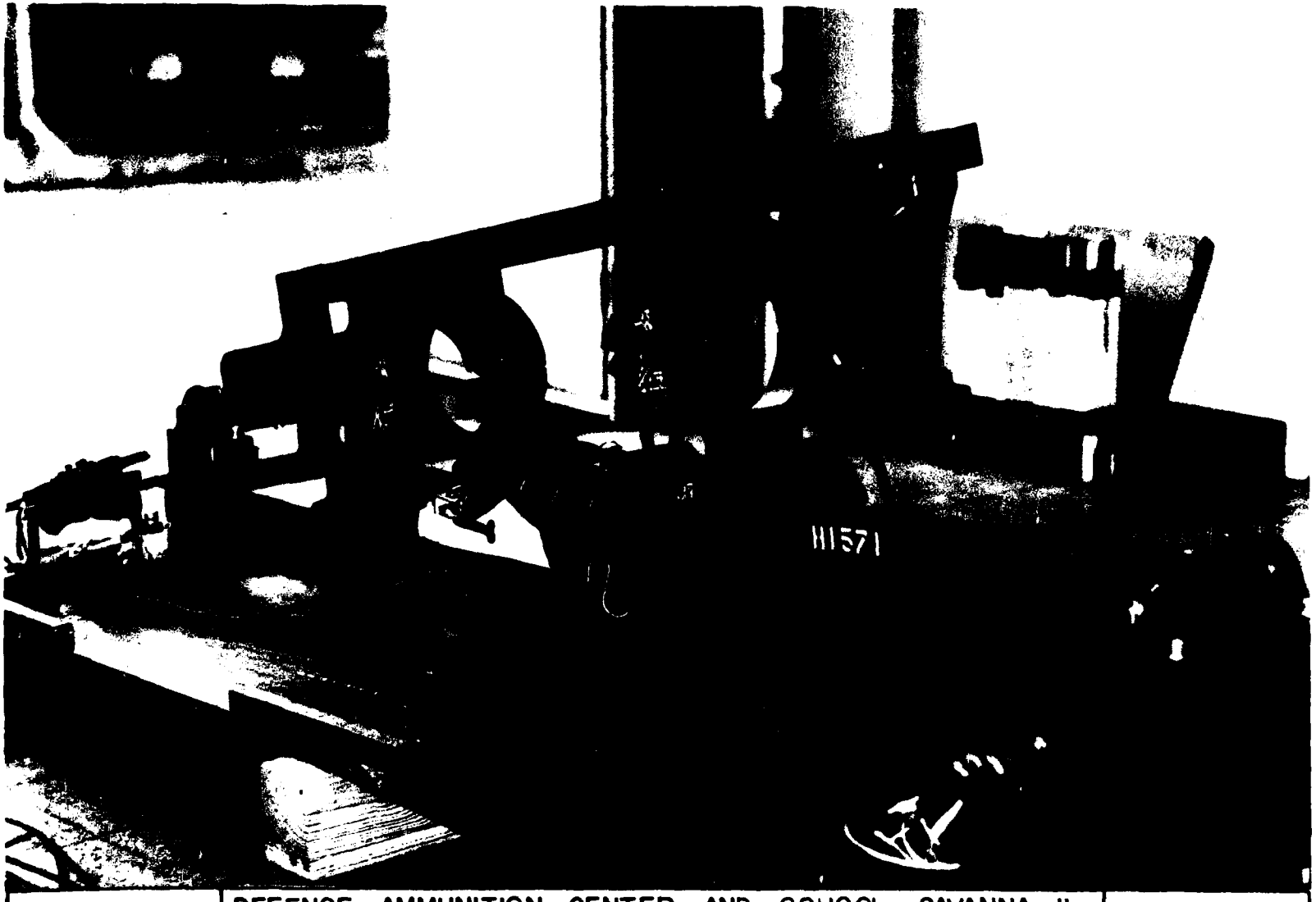
TAPE CHANNEL 10 : LATERAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.84	68.41	.0351
PASS 1, COURSE B	5.00	-.59	276.43	.1284
PASS 2, COURSE A	5.00	.67	64.93	.0304
PASS 2, COURSE B	5.00	.58	115.86	.0412
PASS 3, COURSE A	5.00	1.00	238.68	.1271
PASS 3, COURSE B	5.00	-.64	230.36	.0829
PASS 4, COURSE A	5.00	2.50	1371.76	2.6360
PASS 4, COURSE B	5.00	-.79	97.94	.0562
WASHBOARD COURSE	5.00	*****	*****	*****

TAPE CHANNEL 11 : VERTICAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-1.50	67.08	.0586
PASS 1, COURSE B	5.00	-1.86	53.57	.0655
PASS 2, COURSE A	5.00	-1.15	60.64	.0401
PASS 2, COURSE B	5.00	-.73	61.10	.0247
PASS 3, COURSE A	5.00	-1.41	61.09	.0422
PASS 3, COURSE B	5.00	-1.22	61.91	.0409
PASS 4, COURSE A	5.00	-1.68	74.00	.0756
PASS 4, COURSE B	5.00	-1.85	90.65	.0539
WASHBOARD COURSE	5.00	-2.44	54.82	.0752

**** DATA NOT AVAILABLE



DEFENSE AMMUNITION CENTER AND SCHOOL- SAVANNA, IL

Photo No. 1 View of the H1571 Handling Device with lid off the wooden box. Note the position of the two triaxial accelerometers on the gusset plates of the lower frame.

DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL

Photo No. 2 View of the triaxial accelerometer positioned on the gusset plate.

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Photo No. 3 View of the H1572 Kit with the lid off displaying the method of packing.

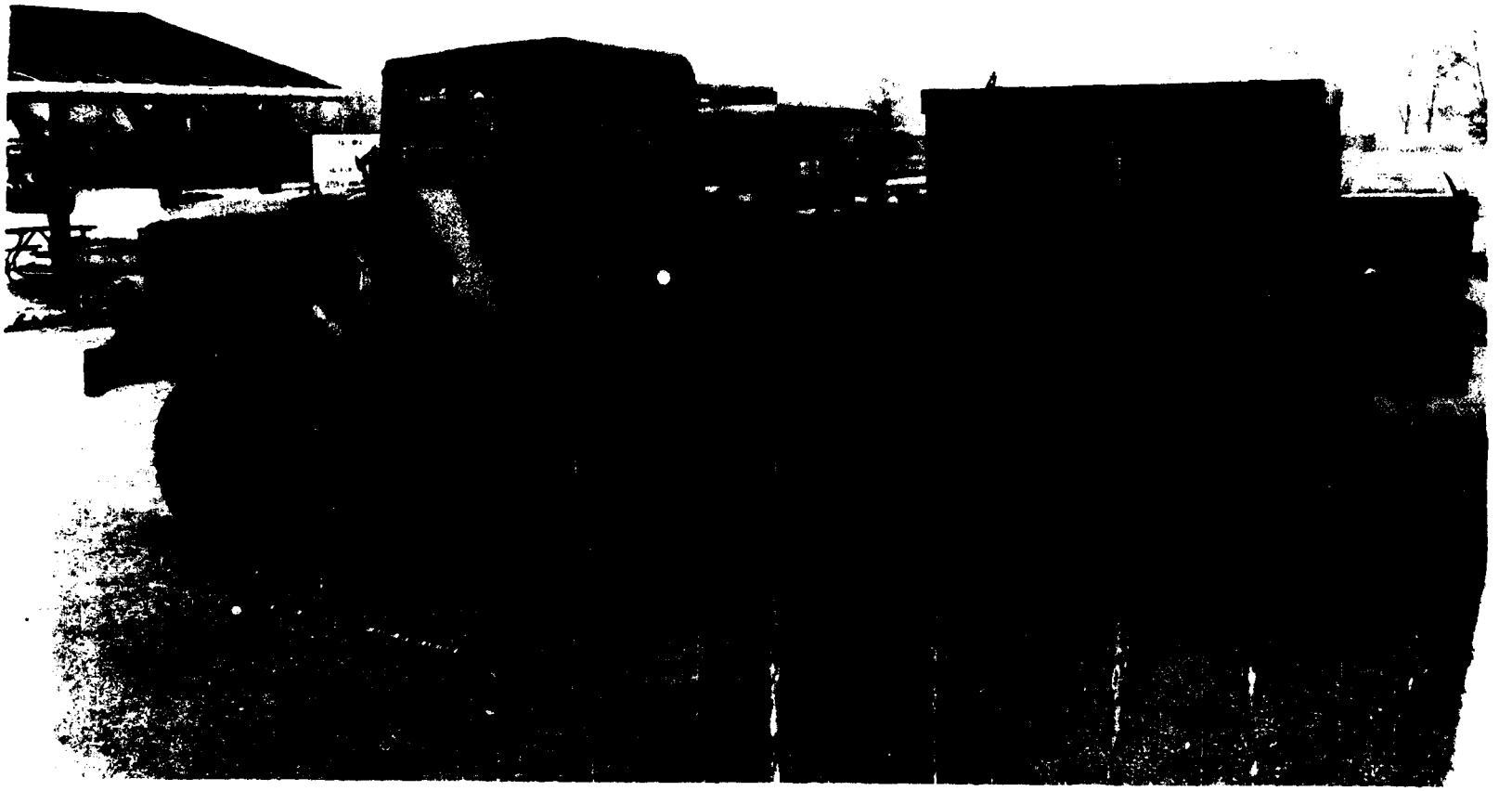

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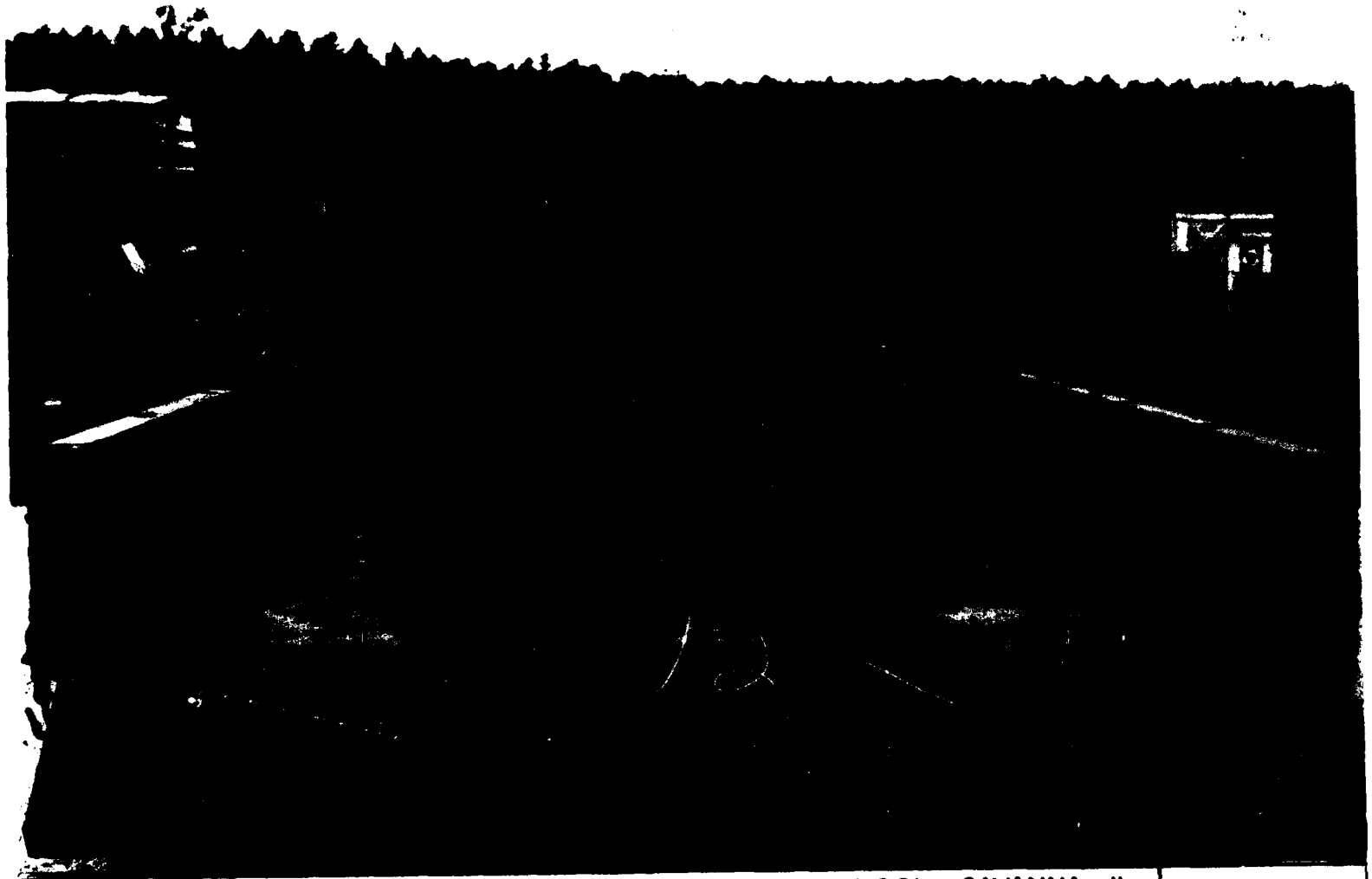
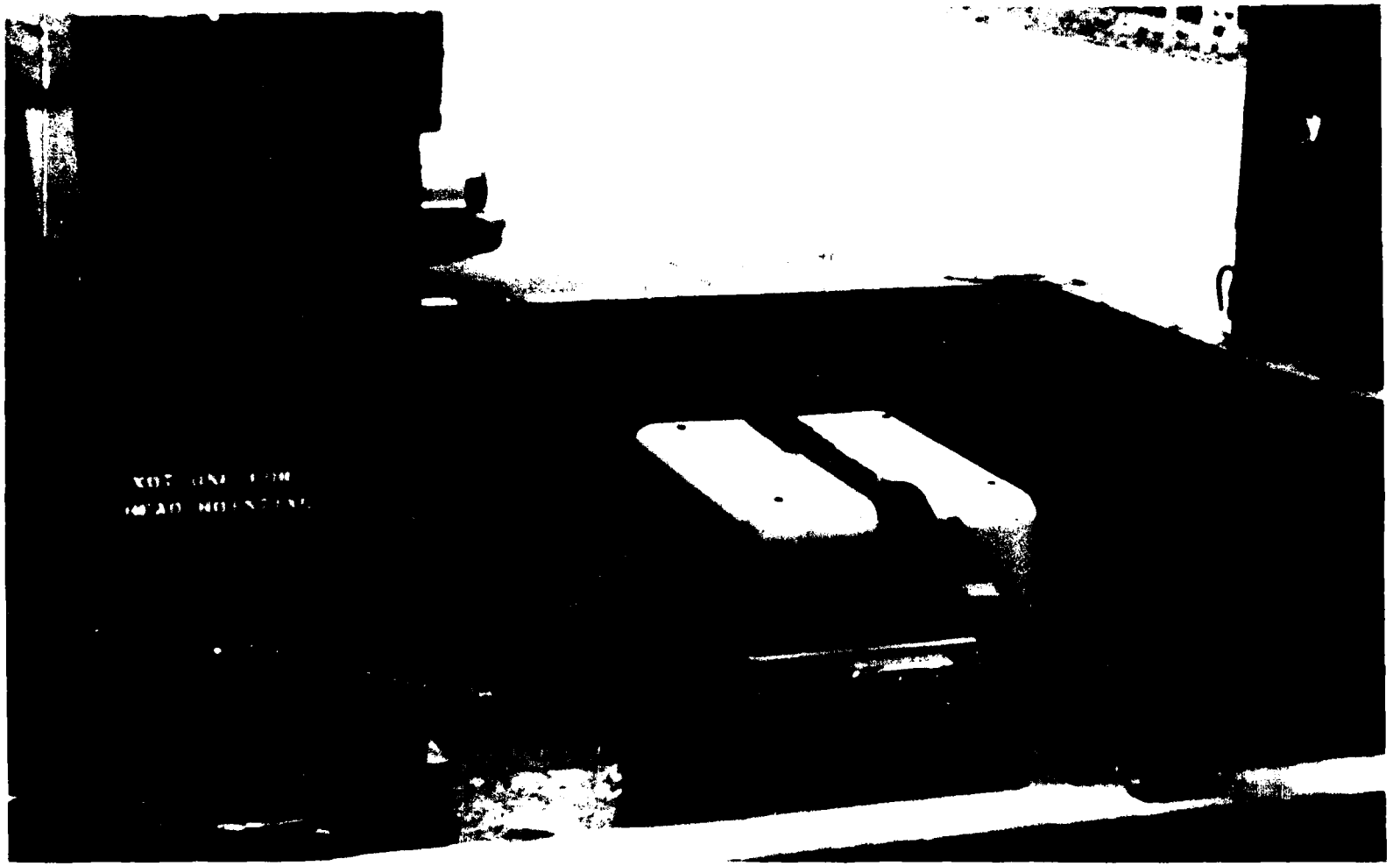
Photo No. 4 View of the H1571 Handling Device (wooden box) and the H1572 Kit secured in the 2-1/2-ton cargo truck.



DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL

Photo No 5 View of the H1571 Handling Device (wooden box) secured in the 2-1/2-ton cargo truck. Note the triaxial accelerometer located on the floor of the cargo bed.



DEFENSE AMMUNITION CENTER AND SCHOOL- SAVANNA, IL	
Photo No. 6 View of the H1572 Kit secured in the 2-1/2-ton cargo truck.	

C. SYNOPSIS OF TEST NO. 2

1. In Test No. 2, the H1571 Handling Device was positioned with its short dimension in the direction of the 2-1/2-ton cargo trucks length. Loaded near the rear of the cargo bed, two web strap tiedown assemblies over top the container (wooden box) were used to secure the H1571 Handling Device in the 2-1/2-ton cargo truck.

2. The H1572 Kit was positioned forward of the H1571 Handling Device with its short dimension in the direction of the 2-1/2-ton cargo trucks width. One web strap tiedown assembly over top the H1572 Kit secured the item.

3. The web strap tiedown assemblies remained taut and the two test items remained in place during the entire test. This tiedown method is approved for on/off highway movement of the H1571 Handling Device and H1572 Kit on the 2-1/2-ton cargo truck.

ROAD TEST DATA

TEST NO. 2 DATE 19 May 1989

TEST SPECIMEN H1571 Handling Device positioned crosswise and H1572 Kit positioned lengthwise on the 2-1/2-ton cargo truck.

PASS 1-A OVER FIRST SERIES OF TIES 6.00 SEC 5.68 MPH

PASS 1-B OVER SECOND SERIES OF TIES 6.00 SEC 5.68 MPH

REMARKS: No movement.

PASS 2-A OVER FIRST SERIES OF TIES 5.85 SEC 5.83 MPH

PASS 2-B OVER SECOND SERIES OF TIES 5.70 SEC 5.98 MPH

REMARKS: H1571 Handling Device moved 1/8-inch to the right.

30 MILE ROAD TEST: No movement.

PANIC STOP TEST: No movement.

PASS 3-A OVER FIRST SERIES OF TIES 6.00 SEC 5.68 MPH

PASS 3-B OVER SECOND SERIES OF TIES 5.70 SEC 5.98 MPH

REMARKS: No movement

PASS 4-A OVER FIRST SERIES OF TIES 6.60 SEC 5.17 MPH

PASS 4-B OVER SECOND SERIES OF TIES 6.30 SEC 5.41 MPH

REMARKS: No movement.

WASHBOARD COURSE: No movement.

RESULTS FROM ROAD HAZARD TESTING ON THE H1571 HANDLING DEVICE & H1572 KIT ON 2-1/2 TON TRUCK IN CONFIGURATION #2
DATE: 19 MAY 1989

TAPE CHANNEL 1 : LONGITUDINAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.13	93.26	.0074
PASS 1, COURSE B	5.00	-.11	71.71	.0042
PASS 2, COURSE A	5.00	.14	49.43	.0039
PASS 2, COURSE B	5.00	.11	49.76	.0032
PASS 3, COURSE A	5.00	.13	54.67	.0038
PASS 3, COURSE B	5.00	-.11	69.91	.0043
PASS 4, COURSE A	5.00	.13	60.19	.0045
PASS 4, COURSE B	5.00	-.10	59.65	.0038
WASHBOARD COURSE	5.00	-.11	36.19	.0017

TAPE CHANNEL 3 : LATERAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.42	68.76	.0174
PASS 1, COURSE B	5.00	-.41	71.31	.0155
PASS 2, COURSE A	5.00	-.40	127.78	.0273
PASS 2, COURSE B	5.00	.48	42.54	.0115
PASS 3, COURSE A	5.00	.45	51.25	.0144
PASS 3, COURSE B	5.00	.42	45.12	.0090
PASS 4, COURSE A	5.00	.43	42.25	.0092
PASS 4, COURSE B	5.00	-.50	44.76	.0121
WASHBOARD COURSE	5.00	.66	52.93	.0226

TAPE CHANNEL 4 : VERTICAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.14	53.56	.0048
PASS 1, COURSE B	5.00	.10	55.17	.0029
PASS 2, COURSE A	5.00	.13	59.72	.0054
PASS 2, COURSE B	5.00	.11	55.21	.0036
PASS 3, COURSE A	5.00	.16	65.46	.0057
PASS 3, COURSE B	5.00	.14	55.64	.0035
PASS 4, COURSE A	5.00	.14	66.30	.0051
PASS 4, COURSE B	5.00	.12	52.28	.0038
WASHBOARD COURSE	5.00	.15	54.48	.0051

TAPE CHANNEL 5 : LONGITUDINAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.66	242.98	.0153
PASS 1, COURSE B	5.00	-.53	54.02	.0187
PASS 2, COURSE A	5.00	.75	46.75	.0192
PASS 2, COURSE B	5.00	.55	73.16	.0225
PASS 3, COURSE A	5.00	.74	48.64	.0218
PASS 3, COURSE B	5.00	-.55	119.31	.0224
PASS 4, COURSE A	5.00	.67	62.82	.0252
PASS 4, COURSE B	5.00	-.55	70.21	.0210
WASHBOARD COURSE	5.00	-.50	31.92	.0094

TAPE CHANNEL 7 : LATERAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.51	43.49	.0106
PASS 1, COURSE B	5.00	.43	53.46	.0130
PASS 2, COURSE A	5.00	.46	49.61	.0129
PASS 2, COURSE B	5.00	-.48	43.44	.0117
PASS 3, COURSE A	5.00	.43	43.13	.0110
PASS 3, COURSE B	5.00	.49	51.42	.0128
PASS 4, COURSE A	5.00	.50	47.64	.0121
PASS 4, COURSE B	5.00	.45	55.61	.0152
WASHBOARD COURSE	5.00	.46	59.74	.0171

TAPE CHANNEL 8 : VERTICAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	1.28	106.49	.0425
PASS 1, COURSE B	5.00	1.26	73.09	.0492
PASS 2, COURSE A	5.00	1.14	63.77	.0502
PASS 2, COURSE B	5.00	1.23	72.23	.0515
PASS 3, COURSE A	5.00	1.18	43.52	.0299
PASS 3, COURSE B	5.00	1.26	64.26	.0439
PASS 4, COURSE A	5.00	1.25	102.37	.0458
PASS 4, COURSE B	5.00	1.14	70.16	.0469
WASHBOARD COURSE	5.00	1.87	63.76	.0619

TAPE CHANNEL 9 : LONGITUDINAL ACCELERATION ON TRUCK BED

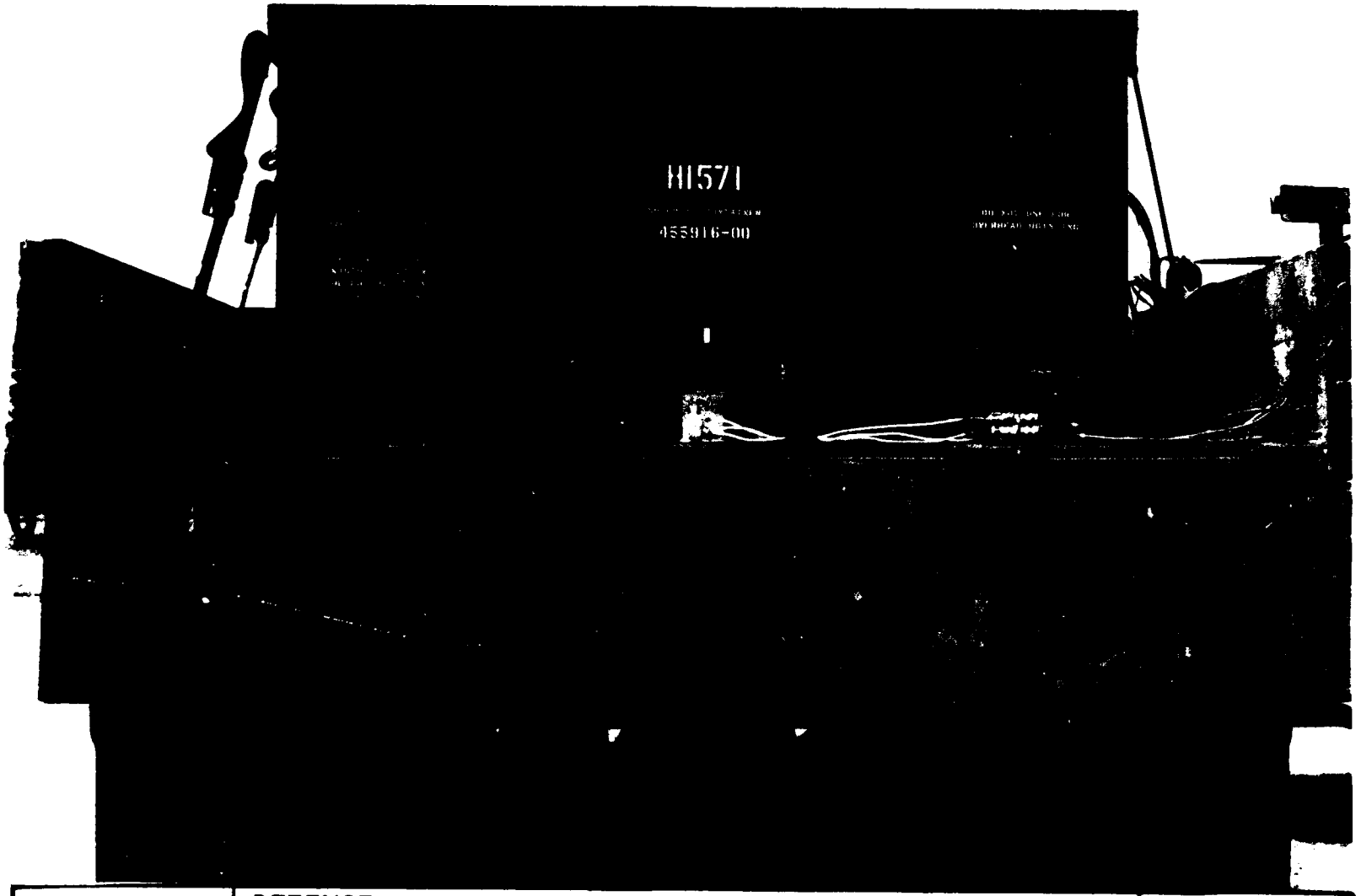
TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.25	50.88	.0072
PASS 1, COURSE B	5.00	.31	75.79	.0132
PASS 2, COURSE A	5.00	.27	69.82	.0118
PASS 2, COURSE B	5.00	-.28	49.28	.0086
PASS 3, COURSE A	5.00	-.27	60.98	.0104
PASS 3, COURSE B	5.00	.28	50.05	.0079
PASS 4, COURSE A	5.00	-.28	53.16	.0094
PASS 4, COURSE B	5.00	-.32	49.41	.0100
WASHBOARD COURSE	5.00	-.40	49.08	.0126

TAPE CHANNEL 10 : LATERAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	2.09	484.33	.8355
PASS 1, COURSE B	5.00	-1.43	393.61	.4319
PASS 2, COURSE A	5.00	-1.18	258.42	.1833
PASS 2, COURSE B	5.00	-1.69	392.43	.5627
PASS 3, COURSE A	5.00	.87	62.27	.0337
PASS 3, COURSE B	5.00	.58	37.98	.0112
PASS 4, COURSE A	5.00	-1.29	131.39	.1304
PASS 4, COURSE B	5.00	-.55	72.77	.0283
WASHBOARD COURSE	5.00	2.31	80.19	.1236

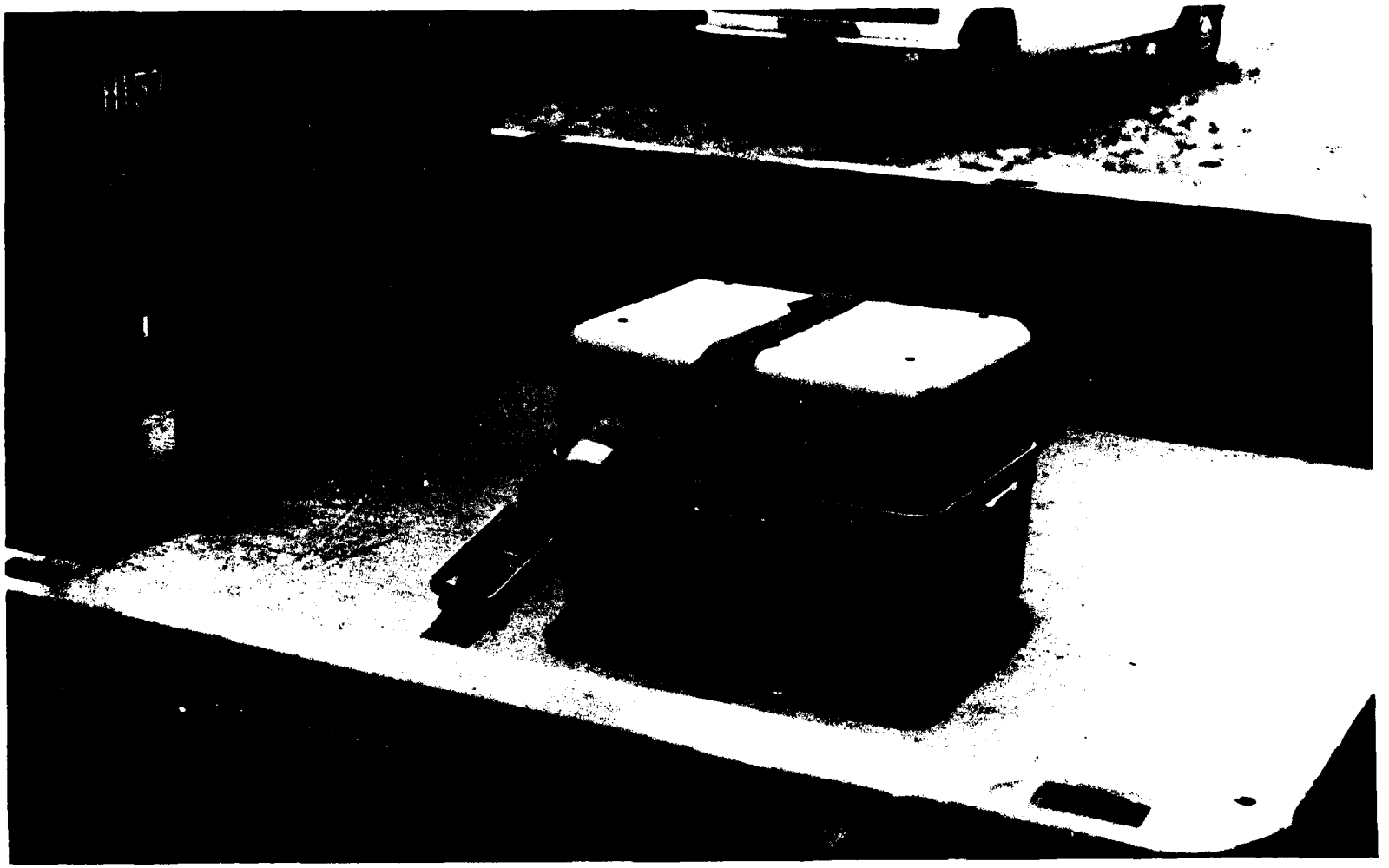
TAPE CHANNEL 11 : VERTICAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-2.18	64.61	.0836
PASS 1, COURSE B	5.00	-1.87	72.77	.0656
PASS 2, COURSE A	5.00	-2.08	61.11	.0855
PASS 2, COURSE B	5.00	-1.93	54.14	.0710
PASS 3, COURSE A	5.00	-2.07	63.47	.0835
PASS 3, COURSE B	5.00	-1.71	42.84	.0465
PASS 4, COURSE A	5.00	-2.20	58.21	.0839
PASS 4, COURSE B	5.00	-1.98	43.82	.0518
WASHBOARD COURSE	5.00	-2.33	47.51	.0705



DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL

Photo No. 7 View of the H1571 Handling Device (wooden box) secured in the 2-1/2-ton cargo truck. Note the triaxial accelerometer located on the floor of the cargo bed.



DEFENSE AMMUNITION CENTER AND SCHOOL- SAVANNA, IL
Photo No. 8 View of the H1572 Kit secured in the 2-1/2-ton cargo truck.

D. SYNOPSIS OF TEST NO. 3

1. In Test No. 3, the H1571 Handling Device was positioned with its long dimension in the direction of the M871 semitrailer's width. Loaded near the rear of the flatbed, two web strap tiedown assemblies over top the container (wooden box) were used to secure the H1571 Handling Device on the M871 semitrailer.

2. The H1572 Kit was loaded immediately forward of the H1571 Handling Device with its long dimension in the direction of the M871 semitrailer's width. One web strap tiedown assembly over top of the H1571 Kit secured the item.

3. During the road test, neither the H1571 Handling Device nor the H1572 Kit moved more than one inch and all web strap tiedown assemblies remained taut. This tiedown method is approved for on/off highway movement of the H1571 Handling Device and the H1572 Kit on the M871 semitrailer.

ROAD TEST DATA

TEST NO. 3 DATE 20 May 1989

TEST SPECIMEN H1571 Handling Device and H1572 Kit positioned crosswise on the M871 semitrailer.

PASS 1-A OVER FIRST SERIES OF TIES 6.00 SEC 5.68 MPH

PASS 1-B OVER SECOND SERIES OF TIES 6.00 SEC 5.68 MPH

REMARKS: H1571 Handling Device moved right 5/8-inch.

PASS 2-A OVER FIRST SERIES OF TIES 6.30 SEC 5.41 MPH

PASS 2-B OVER SECOND SERIES OF TIES 6.15 SEC 5.54 MPH

REMARKS: H1571 Handling Device moved left 1/8-inch.

30 MILE ROAD TEST: No movement.

PANIC STOP TEST: No movement.

PASS 3-A OVER FIRST SERIES OF TIES 6.00 SEC 5.68 MPH

PASS 3-B OVER SECOND SERIES OF TIES 6.00 SEC 5.68 MPH

REMARKS: H1571 Handling Device moved rearward 1/4-inch.

PASS 4-A OVER FIRST SERIES OF TIES 6.15 SEC 5.54 MPH

PASS 4-B OVER SECOND SERIES OF TIES 6.00 SEC 5.68 MPH

REMARKS: H1572 Kit moved rearward 1/2-inch.

WASHBOARD COURSE: H1571 Handling Device moved 3/4-inch forward and 1/2-inch to the left.

RESULTS FROM ROAD HAZARD TESTING ON THE H1571 HANDLING DEVICE & H1572 KIT ON FLATBED SEMI-TRAILER IN CONFIG. #1
DATE: 20 MAY 1989

TAPE CHANNEL 1 : LONGITUDINAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.26	38.54	.0046
PASS 1, COURSE B	5.00	-.17	62.34	.0063
PASS 2, COURSE A	5.00	.20	44.98	.0037
PASS 2, COURSE B	5.00	-.18	54.04	.0051
PASS 3, COURSE A	5.00	-.23	35.45	.0045
PASS 3, COURSE B	5.00	-.17	67.39	.0050
PASS 4, COURSE A	5.00	-.25	36.84	.0047
PASS 4, COURSE B	5.00	-.18	55.07	.0055
WASHBOARD COURSE	5.00	.26	54.26	.0066

TAPE CHANNEL 3 : LATERAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.28	50.20	.0071
PASS 1, COURSE B	5.00	.33	43.73	.0078
PASS 2, COURSE A	5.00	.36	35.70	.0075
PASS 2, COURSE B	5.00	.31	105.97	.0056
PASS 3, COURSE A	5.00	.44	33.09	.0070
PASS 3, COURSE B	5.00	.34	38.10	.0074
PASS 4, COURSE A	5.00	.40	33.31	.0048
PASS 4, COURSE B	5.00	.43	34.52	.0100
WASHBOARD COURSE	5.00	-.56	32.07	.0092

TAPE CHANNEL 4 : VERTICAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.23	57.00	.0066
PASS 1, COURSE B	5.00	.22	45.54	.0053
PASS 2, COURSE A	5.00	.23	46.71	.0062
PASS 2, COURSE B	5.00	.24	50.96	.0067
PASS 3, COURSE A	5.00	.28	36.42	.0054
PASS 3, COURSE B	5.00	.25	43.15	.0059
PASS 4, COURSE A	5.00	.29	49.50	.0080
PASS 4, COURSE B	5.00	.25	46.36	.0069
WASHBOARD COURSE	5.00	*****	*****	*****

**** DATA NOT AVAILABLE

TAPE CHANNEL 5 : LONGITUDINAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-1.46	37.54	.0256
PASS 1, COURSE B	5.00	-.99	51.99	.0295
PASS 2, COURSE A	5.00	-1.11	40.57	.0196
PASS 2, COURSE B	5.00	-1.07	53.50	.0315
PASS 3, COURSE A	5.00	-1.51	33.74	.0191
PASS 3, COURSE B	5.00	-.94	60.98	.0306
PASS 4, COURSE A	5.00	-1.24	33.73	.0233
PASS 4, COURSE B	5.00	-.97	50.96	.0323
WASHBOARD COURSE	5.00	1.43	55.39	.0420

TAPE CHANNEL 7 : LATERAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.05	33.27	.0010
PASS 1, COURSE B	5.00	-.02	40.96	.0003
PASS 2, COURSE A	5.00	.01	27.69	.0002
PASS 2, COURSE B	5.00	.02	41.13	.0003
PASS 3, COURSE A	5.00	.24	24.98	.0033
PASS 3, COURSE B	5.00	-.24	38.23	.0043
PASS 4, COURSE A	5.00	.31	28.82	.0043
PASS 4, COURSE B	5.00	.25	24.42	.0039
WASHBOARD COURSE	5.00	-.37	25.75	.0044

TAPE CHANNEL 8 : VERTICAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	2.71	47.57	.0716
PASS 1, COURSE B	5.00	1.63	62.78	.0615
PASS 2, COURSE A	5.00	2.79	45.99	.0661
PASS 2, COURSE B	5.00	1.59	48.24	.0451
PASS 3, COURSE A	5.00	2.87	47.68	.0746
PASS 3, COURSE B	5.00	1.84	72.02	.0537
PASS 4, COURSE A	5.00	2.88	48.53	.0682
PASS 4, COURSE B	5.00	1.77	43.88	.0483
WASHBOARD COURSE	5.00	2.60	47.48	.0648

TAPE CHANNEL 9 : LONGITUDINAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	*****	*****	*****
PASS 1, COURSE B	5.00	*****	*****	*****
PASS 2, COURSE A	5.00	*****	*****	*****
PASS 2, COURSE B	5.00	*****	*****	*****
PASS 3, COURSE A	5.00	*****	*****	*****
PASS 3, COURSE B	5.00	*****	*****	*****
PASS 4, COURSE A	5.00	*****	*****	*****
PASS 4, COURSE B	5.00	*****	*****	*****
WASHBOARD COURSE	5.00	*****	*****	*****

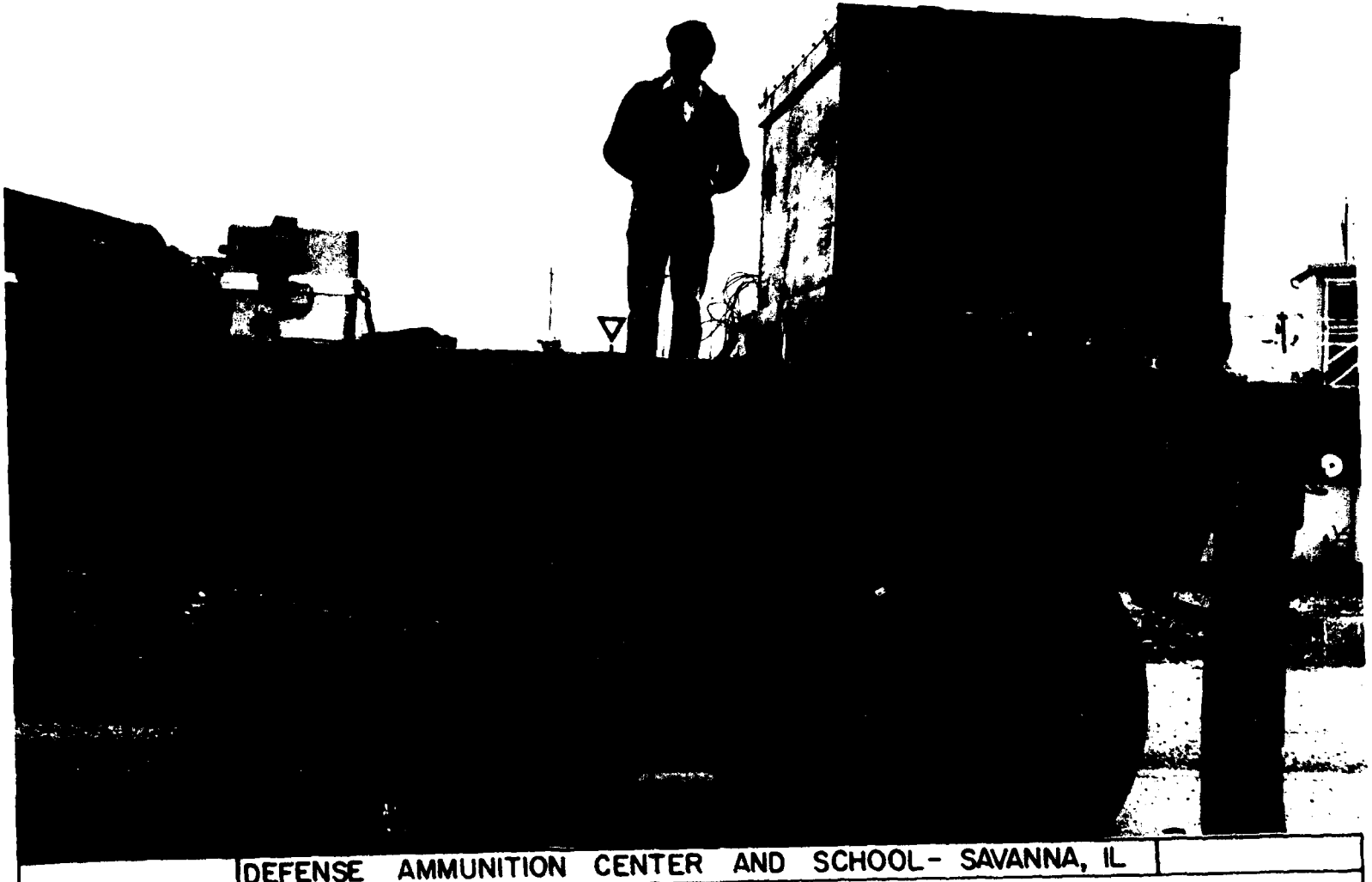
TAPE CHANNEL 10 : LATERAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-1.28	50.61	.0381
PASS 1, COURSE B	5.00	-.82	67.01	.0276
PASS 2, COURSE A	5.00	.87	68.02	.0371
PASS 2, COURSE B	5.00	-.77	58.62	.0249
PASS 3, COURSE A	5.00	.84	63.73	.0352
PASS 3, COURSE B	5.00	-.77	143.08	.0475
PASS 4, COURSE A	5.00	.67	60.54	.0247
PASS 4, COURSE B	5.00	.71	78.48	.0429
WASHBOARD COURSE	5.00	1.25	176.51	.1675

TAPE CHANNEL 11 : VERTICAL ACCELERATION ON TRUCK BED

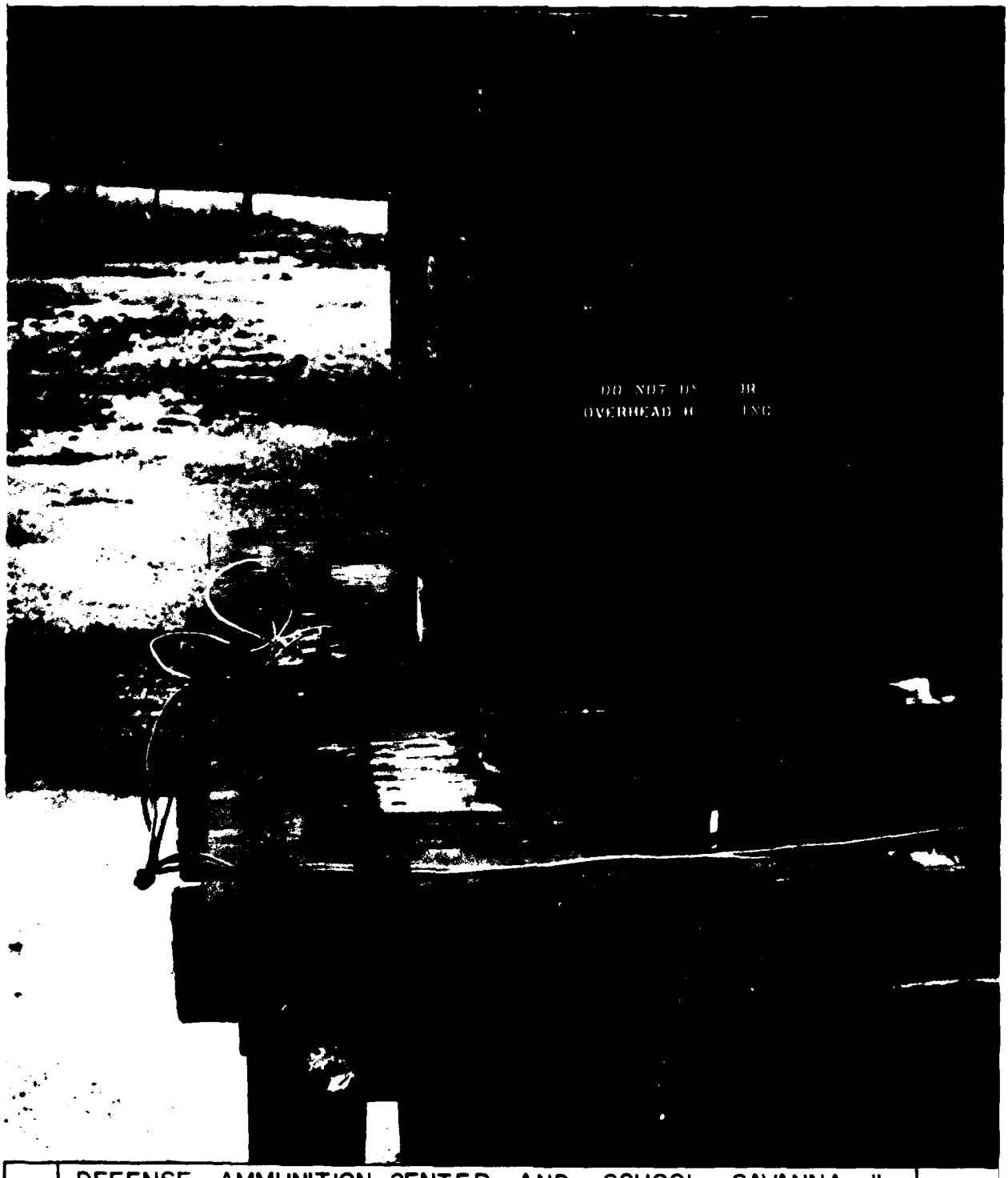
TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-2.68	59.73	.0850
PASS 1, COURSE B	5.00	-2.28	56.80	.0634
PASS 2, COURSE A	5.00	-2.66	55.74	.0839
PASS 2, COURSE B	5.00	-1.95	56.29	.0591
PASS 3, COURSE A	5.00	-2.33	51.71	.0620
PASS 3, COURSE B	5.00	-2.19	53.46	.0648
PASS 4, COURSE A	5.00	-2.58	54.87	.0761
PASS 4, COURSE B	5.00	-2.21	54.82	.0577
WASHBOARD COURSE	5.00	-2.35	52.07	.0643

DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL
Photo No. 9 View of the H1571 Handling Device and H1572 Kit secured on the M871 semitrailer.



DEFENSE AMMUNITION CENTER AND SCHOOL- SAVANNA, IL

Photo No. 10 View of the M1571 Handling Device and H1572 Kit secured on the M871 semitrailer.



DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL

Photo No. 11 View of the triaxial accelerometer located on the rear of the bed of the M871 semitrailer.

E. SYNOPSIS OF TEST NO. 4

1. In Test No. 4, the H1571 Handling Device was positioned with its long dimension in the direction of the M871 semitrailer's length. Loaded near the rear of flatbed, two web strap assemblies over top the container (wooden box) were used to secure the H1571 Handling Device on the M871 semitrailer.

2. The H1572 Kit was loaded immediately forward of the H1571 Handling Device with its long dimension in the direction of the M871 semitrailer's length. One web strap tiedown assembly over top the H1572 Kit secured the item.

3. Although the H1571 Handling Device moved approximately 4-1/2 inches during the road test, the two web strap tiedown assemblies also moved 2 inches on the box but remained taut. On completion of the road test, inspection of the wooden box showed the wooden skids starting to turn under the base of the box. The movement of the H1572 Kit during the test was less than 1 inch and the single web strap tiedown assembly remained fully tensioned.

4. The tiedown method as tested is approved for on/off highway movement of the H1571 Handling Device and the H1572 Kit on the M871 semitrailer.

ROAD TEST DATA

TEST NO. 4 DATE 20 May 1989

TEST SPECIMEN H1571 Handling Device and H1572 Kit position on the M871 semitrailer.

PASS 1-A OVER FIRST SERIES OF TIES 6.15 SEC 5.54 MPH

PASS 1-B OVER SECOND SERIES OF TIES 6.00 SEC 5.68 MPH

REMARKS: H1572 Kit moved rearward 1/4-inch.

PASS 2-A OVER FIRST SERIES OF TIES 6.15 SEC 5.54 MPH

PASS 2-B OVER SECOND SERIES OF TIES 6.00 SEC 5.68 MPH

REMARKS: H1572 Kit moved rearward 1/4-inch and H1571 Handling Device moved forward 1/2-inch and left 1/4-inch.

30 MILE ROAD TEST: No movement.

PANIC STOP TEST: No movement.

PASS 3-A OVER FIRST SERIES OF TIES 6.30 SEC 5.41 MPH

PASS 3-B OVER SECOND SERIES OF TIES 6.15 SEC 5.54 MPH

REMARKS: H1571 Handling Device moved forward 3/4-inch and left 1/4-inch. H1572 Kit moved rearward 1/4-inch.

PASS 4-A OVER FIRST SERIES OF TIES 6.30 SEC 5.41 MPH

PASS 4-B OVER SECOND SERIES OF TIES 6.30 SEC 5.41 MPH

REMARKS: H1571 Handling Device moved forward 1 inch. Web straps over H1571 Handling Device moved rearward 1-inch.

WASHBOARD COURSE: H1571 Handling Device moved forward 2 inches. Web straps over H1571 Handling Device moved rearward 2 inches. Rear skid under wooden box containing the H1571 Handling Device started to buckle.

RESULTS FROM ROAD HAZARD TESTING ON THE H1571 HANDLING DEVICE & H1572 KIT ON FLATBED SEMI-TRAILER IN CONFIG. #2
DATE: 20 MAY 1989

TAPE CHANNEL 1 : LONGITUDINAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.07	33.17	.0012
PASS 1, COURSE B	5.00	-.07	36.63	.0013
PASS 2, COURSE A	5.00	-.06	31.18	.0011
PASS 2, COURSE B	5.00	-.07	28.45	.0012
PASS 3, COURSE A	5.00	-.07	21.71	.0005
PASS 3, COURSE B	5.00	-.05	49.64	.0012
PASS 4, COURSE A	5.00	-.06	26.16	.0003
PASS 4, COURSE B	5.00	.07	18.60	.0004
WASHBOARD COURSE	5.00	.11	23.62	.0008

TAPE CHANNEL 3 : LATERAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	1.02	70.02	.0491
PASS 1, COURSE B	5.00	-.85	68.98	.0300
PASS 2, COURSE A	5.00	-1.10	35.77	.0185
PASS 2, COURSE B	5.00	.83	43.40	.0211
PASS 3, COURSE A	5.00	-1.21	42.09	.0262
PASS 3, COURSE B	5.00	-.80	75.56	.0286
PASS 4, COURSE A	5.00	-1.00	36.81	.0187
PASS 4, COURSE B	5.00	.80	51.14	.0271
WASHBOARD COURSE	5.00	-1.11	57.48	.0364

TAPE CHANNEL 4 : VERTICAL ACCELERATION ON SPRING SUPPORT END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	2.96	57.01	.0900
PASS 1, COURSE B	5.00	1.97	57.04	.0546
PASS 2, COURSE A	5.00	2.69	56.17	.0830
PASS 2, COURSE B	5.00	2.20	59.42	.0607
PASS 3, COURSE A	5.00	2.50	49.09	.0634
PASS 3, COURSE B	5.00	2.20	52.27	.0636
PASS 4, COURSE A	5.00	2.74	59.53	.0903
PASS 4, COURSE B	5.00	2.21	53.83	.0664
WASHBOARD COURSE	5.00	2.48	61.55	.0792

TAPE CHANNEL 5 : LONGITUDINAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-.40	23.91	.0038
PASS 1, COURSE B	5.00	-.31	41.97	.0065
PASS 2, COURSE A	5.00	-.33	28.51	.0033
PASS 2, COURSE B	5.00	-.31	36.72	.0063
PASS 3, COURSE A	5.00	-.38	28.40	.0047
PASS 3, COURSE B	5.00	.37	19.87	.0020
PASS 4, COURSE A	5.00	.32	21.92	.0024
PASS 4, COURSE B	5.00	.35	25.39	.0033
WASHBOARD COURSE	5.00	.61	27.81	.0075

TAPE CHANNEL 7 : LATERAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-1.16	35.23	.0205
PASS 1, COURSE B	5.00	-.96	55.52	.0320
PASS 2, COURSE A	5.00	-1.13	35.42	.0230
PASS 2, COURSE B	5.00	-.93	50.84	.0284
PASS 3, COURSE A	5.00	-1.32	40.52	.0268
PASS 3, COURSE B	5.00	.90	54.54	.0270
PASS 4, COURSE A	5.00	-1.06	34.64	.0195
PASS 4, COURSE B	5.00	-.92	59.77	.0321
WASHBOARD COURSE	5.00	-1.44	50.86	.0402

TAPE CHANNEL 8 : VERTICAL ACCELERATION ON REAR END

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	2.75	55.66	.0834
PASS 1, COURSE B	5.00	2.19	53.66	.0617
PASS 2, COURSE A	5.00	2.81	59.60	.0857
PASS 2, COURSE B	5.00	2.12	56.15	.0664
PASS 3, COURSE A	5.00	2.34	50.31	.0690
PASS 3, COURSE B	5.00	2.26	56.49	.0646
PASS 4, COURSE A	5.00	2.60	53.48	.0704
PASS 4, COURSE B	5.00	2.70	53.25	.0665
WASHBOARD COURSE	5.00	2.60	53.91	.0727

TAPE CHANNEL 9 : LONGITUDINAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	*****	*****	*****
PASS 1, COURSE B	5.00	*****	*****	*****
PASS 2, COURSE A	5.00	*****	*****	*****
PASS 2, COURSE B	5.00	*****	*****	*****
PASS 3, COURSE A	5.00	*****	*****	*****
PASS 3, COURSE B	5.00	*****	*****	*****
PASS 4, COURSE A	5.00	*****	*****	*****
PASS 4, COURSE B	5.00	*****	*****	*****
WASHBOARD COURSE	5.00	*****	*****	*****

TAPE CHANNEL 10 : LATERAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	.94	59.17	.0358
PASS 1, COURSE B	5.00	.70	61.82	.0287
PASS 2, COURSE A	5.00	.83	79.15	.0377
PASS 2, COURSE B	5.00	.70	69.52	.0341
PASS 3, COURSE A	5.00	.87	63.11	.0356
PASS 3, COURSE B	5.00	.67	77.90	.0346
PASS 4, COURSE A	5.00	.65	58.95	.0203
PASS 4, COURSE B	5.00	.72	50.75	.0248
WASHBOARD COURSE	5.00	1.39	149.68	.1881

TAPE CHANNEL 11 : VERTICAL ACCELERATION ON TRUCK BED

TEST	SPEED MPH	PEAK VALUE G'S	DURATION MILLISECONDS	AREA G'S-SECONDS
PASS 1, COURSE A	5.00	-2.90	59.11	.0884
PASS 1, COURSE B	5.00	-2.38	54.69	.0665
PASS 2, COURSE A	5.00	-2.61	58.30	.0823
PASS 2, COURSE B	5.00	-2.19	54.81	.0608
PASS 3, COURSE A	5.00	-2.40	57.77	.0656
PASS 3, COURSE B	5.00	-2.51	53.11	.0695
PASS 4, COURSE A	5.00	-2.90	59.01	.0854
PASS 4, COURSE B	5.00	-2.50	54.72	.0704
WASHBOARD COURSE	5.00	-2.89	46.28	.0775

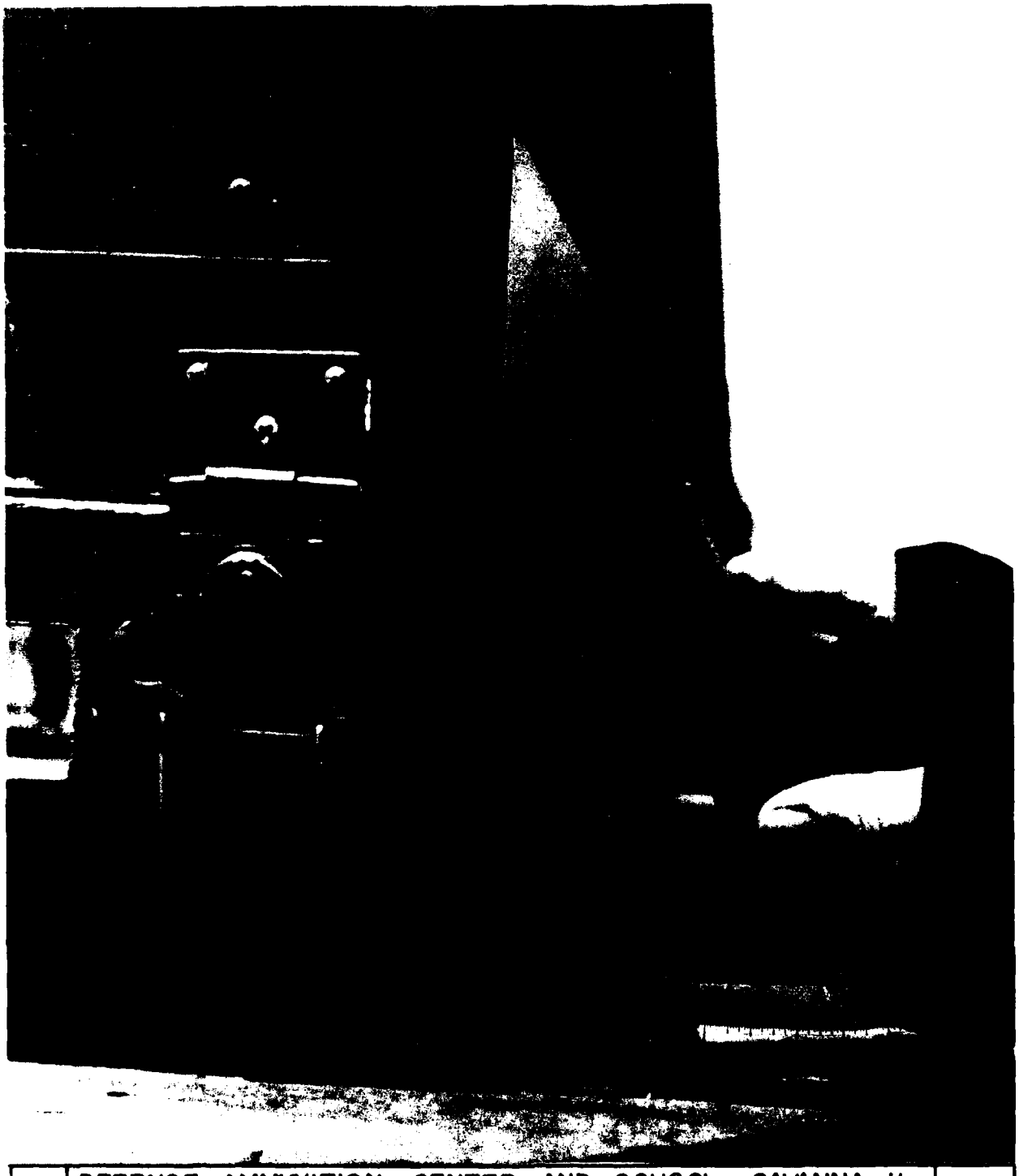
**** DATA NOT AVAILABLE

DEFENSE AMMUNITION CENTER AND SCHOOL- SAVANNA, IL

Photo No. 12 View of the rear of the test load and also the truck carrying the instrumentation package.

DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL

Photo No. 13 View of the H1571 Handling Device (wooden box) secured to the M871 semitrailer.



DEFENSE AMMUNITION CENTER AND SCHOOL - SAVANNA, IL

Photo No. 14 View of the buckled skid under the end of the H1571 Handling Device (wooden box) following the road hazard course.

PART 5

LOADING, TIEDOWN, AND UNLOADING PROCEDURES

17

LOADING, TIEDOWN, AND UNLOADING PROCEDURES FOR THE HI571 STAND, THE HI572 KIT, AND THE M753 PROJECTILE IN THE M613 CONTAINER, IN/ON TACTICAL VEHICLES

INDEX

NOTE: THE TACTICAL VEHICLES LISTED IN THE INDEX ABOVE AND SHOWN WITHIN THIS DRAWING WERE SELECTED AS TYPICAL ONLY. OTHER TYPES OF VEHICLES MAY BE USED IN LIEU OF THOSE SHOWN AS LONG AS THEY COMPLY WITH GENERAL NOTE "D" ON PAGE 2.

REVISIONS	DRAFTSMAN	TYPIST	CHECKER	TECHNICIAN	ENGINEER
	Dier	TM			JDS

U.S. ARMY MATERIEL COMMAND

CLASS	DIVISION	DRAWING	FILE
19	48	6635	SW 17M20

DO NOT SCALE

GENERAL NOTES

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND IMPLEMENTS TM 39-20-7. RESTRICTIONS CONTAINED IN THAT MANUAL MUST BE OBSERVED.

B. ... DRAWING COVERS PROCEDURES APPLICABLE TO THE TRANSPORT OF THE H1571 STAND, THE H1572 KIT, AND THE M753 PROJECTILE IN THE M613 CONTAINER. THE PROCEDURES FOR THE H1571 STAND AND H1572 KIT TO BE USED WERE DEVELOPED AND VERY SATISFACTORILY PASSED THE DACS STANDARD ROAD TEST ON 19 AND 20 MAY 1989. THE PROCEDURES FOR THE M613 CONTAINERS ARE PRESENTLY PROVIDED IN AMC DRAWING 19-48-6623-SW17M19 (PROJECT SWP-TV 23A-78). IF OTHER TYPES OF CARGO ITEMS ARE TRANSPORTED WITH THOSE SHOWN, THE TOTAL LOAD MUST BE COMPATIBLE AND THE ADDED ITEMS MUST BE SECURED WITH WEB STRAP ASSEMBLIES, AS REQUIRED TO PREVENT DISPLACEMENT DURING TRANSPORTATION.

C. FOR DETAILS OF THE H1571 STAND AND H1572 KIT, SEE PAGE 4 OF THIS DRAWING. FOR DETAILS OF THE M613 CONTAINER, SEE PAGES 8 AND 9 OF THIS DRAWING.

H1571 DIMENSIONS - 71-1/2" LONG BY 51-1/2" WIDE BY 36-1/4" HIGH
GROSS WEIGHT -- 486 POUNDS (APPROX).

H1572 DIMENSIONS - 19" LONG BY 14-1/2" WIDE BY 14-1/2" HIGH
GROSS WEIGHT -- 60 POUNDS (APPROX).

M613 DIMENSIONS - 65-3/8" LONG BY 13-1/2" WIDE BY 14-3/4" HIGH
GROSS WEIGHT -- 430 POUNDS (APPROX).

D. DEPICTED PROCEDURES APPLY TO THE VEHICLES DESIGNATED HEREIN, MODIFIED TO INCLUDE THE UNIVERSALLY APPLICABLE "TIEDOWN KIT" WHICH CONSISTS OF THE TIEDOWN FITTINGS OR ANCHOR DEVICES FOR INSTALLATION IN/ON CARGO BEDS, AND WEB STRAP TIEDOWN ASSEMBLIES. SEE PAGE 11 FOR GUIDANCE.

E. WHENEVER POSSIBLE, A LOAD SHOULD BE CENTERED LATERALLY IN/ON CARRYING VEHICLE TO PROVIDE FOR EQUAL ANGLE HOLD DOWN BY THE SECURING WEB STRAP ASSEMBLIES. WHENEVER POSSIBLE, LADING SHOULD BE CENTERED LONGITUDINALLY (IN/ON THE CARRYING VEHICLE) BETWEEN THE SELECTED TIEDOWN FITTINGS TO BE USED. HOWEVER, DUE TO LADING WEIGHT, LADING LENGTH, LADING CONFIGURATION, AND/OR LOCATION AND QUANTITY OF TIEDOWN ANCHORS WITHIN THE CARRYING VEHICLE IT MAY BE NECESSARY TO LOCATE THE LADING LONGITUDINALLY IN/ON A VEHICLE AS SHOWN WITHIN THIS DRAWING TO PROVIDE FOR PROPER TIEDOWN AND TO ACHIEVE A MAXIMUM LOAD.

F. WEB STRAP TIEDOWN ASSEMBLIES MUST BE SECURELY HOOKED INTO ANCHORING DEVICES ON THE TRANSPORTING VEHICLE AND FIRMLY TENSIONED. FIRMLY TENSTONED MEANS, WHEN THE OPEARTOR PULLS ON THE RATCHET HANDLE BY HAND, THE RATCHET WILL NOT ADVANCE ANOTHER NOTCH. NO TYPE OF MECHANICAL EXTENSION OR LEVER WILL BE USED. EXERCISE CARE DURING STRAP APPLICATION. AVOID TWISTS IN THE STRAP TO THE EXTENT POSSIBLE (IF TIME PERMITS) BUT ENSURE THERE ARE NO KNOTS IN THE STRAP. ON THE TAKE-UP SPOOL OF THE RATCHET, ENSURE STRAIGHT LAY OF THE STRAP WHEN TENSIONING. AFTER INITIAL WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, BY ROTATING THE TAKE-UP SPOOL UNTIL NO METAL ON THE SPOOL IS SHOWING AND THE STRAP HAS MADE CONTACT WITH ITSELF, THE TENSIONED STRAP MUST FORM AT LEAST 1/2" BUT NOT MORE THAN 1-1/2 WRAPS OF STRAP ON THE TAKE-UP SPOOL OF THE TENSIONING RATCHET. AFTER TENSIONING IS COMPLETED ENSURE THAT THE SPOOL LOCKING-LATCH IS FULLY SEATED AT BOTH ENDS OF THE SPOOL IN MATCHING LOCKING NOTCHES. TIE BACK THE LOOSE END OF THE STRAP AFTER TENSIONING IS COMPLETED (LOOSE END MAY BE FOLDED AND TAPED OR TIED TO THE TENSION STRAP IF TIME PERMITS). FOR ADDITIONAL GUIDANCE, SEE "RATCHET/RATCHETING DETAILS" ON PAGE 10.

G. ADJUSTABLE SCUFF SLEEVES PROVIDED ON WEB STRAP ASSEMBLIES WILL BE LOCATED TO PROVIDE A PAD WHERE STRAPS PASS OVER SHARP EDGES, OR RATCHETS AND HOOKS ON PREVIOUSLY INSTALLED WEB STRAP TIEDOWN ASSEMBLIES. METAL PARTS OF A STRAP ASSEMBLY SHOULD BE LOCATED SO AS TO AVOID CONTACT WITH THE CARGO.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

IF CONTACT CANNOT BE AVOIDED, A SUITABLE ANTI-CHAFING MATERIAL, AS LISTED UNDER THE MATERIAL SPECIFICATIONS BELOW, MUST BE POSITIONED BETWEEN THE METAL PARTS OF A STRAP ASSEMBLY AND THE CARGO AND IF NECESSARY, TAPED OR TIED IN POSITION.

H. IF THE SIDE RACKS FOR THE SEMITRAILER ARE TO BE TRANSPORTED ON THE LOADED TRAILER, THEY WILL BE STACKED ON THE TRAILER AND SECURED WITH A SUFFICIENT QUANTITY OF WEB STRAP TIEDOWN ASSEMBLIES TO PREVENT LOSS DURING TRANSPORT. NOTE: IF DESIRED, THE SIDE RACKS FOR THE M871 AND M872 SEMITRAILERS MAY BE POSITIONED IN PLACE AFTER THE LOAD HAS BEEN SECURED.

J. PROCEDURES DEPICTED HEREIN ARE TYPICAL IN NATURE. RELATIVE TO ITEM LOCATION AND QUANTITIES OF THE DESIGNATED ITEM MAY BE VARIED TO SATISFY OPERATIONAL REQUIREMENTS PROVIDED LOADING AND TIEDOWN PRINCIPLES SPECIFIED HEREIN ARE RETAINED.

K. WHEN ONE WEB STRAP TIEDOWN ASSEMBLY IS NOT LONG ENOUGH TO SPAN THE DISTANCE DEPICTED TWO ASSEMBLIES MAY BE HOOKED TOGETHER TO GAIN THE NECESSARY LENGTH.

L. THE TIEDOWN METHODS WITHIN THIS DRAWING SHOW TWO HOOKS TO BE CONNECTED TO ONE TIEDOWN EYE. THIS IS AUTHORIZED AS SPECIFIED HEREIN AND MEETS THE INTENT OF THE REQUIREMENTS CITED IN TB 9-2300-280-30.

M. ALTHOUGH TIEDOWN PROCEDURES FOR DEMOLITION MATERIAL CONSISTING OF CHARGES AND/OR CAPS ARE DELINEATED WITHIN THIS DRAWING, THIS MATERIAL WILL NOT NECESSARILY BE INCLUDED EACH TIME A CONTAINER IS MOVED. IF DEMOLITION MATERIAL IS INCLUDED AND IT IS TO BE PLACED WITH THE CARGO ON THE VEHICLE BEING USED, IT MUST BE RESTRAINED AGAINST SHIFTING DURING TRANSPORT. SEE "SECUREMENT OF BLASTING CAPS" ON PAGE 13 FOR METHOD OF SECURING CAPS IN/ON VEHICLES. FOR SECUREMENT OF DEMOLITION CHARGE, SEE "SECUREMENT OF DEMOLITION CHARGE" ON PAGE 12. PACKAGING FOR CHARGES AND CAPS MAY DIFFER FROM THE PACKAGING DEPICTED HEREIN; HOWEVER, THE SECUREMENT PROCEDURES SPECIFIED HEREIN FOR THESE ITEMS SHOULD BE FOLLOWED AS CLOSELY AS POSSIBLE. FOR SPECIFIC GUIDANCE ON DEMOLITION MATERIAL REQUIREMENTS, ATTENTION IS DIRECTED TO THE "TRANSPORTATION" SECTION OF THE APPLICABLE SYSTEM MANUAL.

N. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM, AND ONE POUND EQUALS 0.454KG.

O. THE LOAD ON PAGE 4 IS SHOWN IN "ISOMETRIC" AND IS TO BE USED AS GUIDANCE ALONG WITH THE "TOP VIEWS" OF VEHICLES SHOWN ON PAGES 5 THROUGH 7.

P. FOR ADDITIONAL GUIDANCE ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION ON PAGES 4 THROUGH 7, AND "LOADING, TIEDOWN, AND UNLOADING PROCEDURES", ON PAGE 3.

MATERIAL SPECIFICATIONS

STRAP ---------- REFER TO THE APPROPRIATE NUCLEAR SYSTEMS ORGANIZATIONAL MAINTENANCE TECHNICAL MANUAL

ANTI-CHAFING MATERIAL -- CANVAS, BURLAP, TAPE OR ANY OTHER SUITABLE MATERIAL

LOADING, TIEDOWN AND UNLOADING PROCEDURES:

1. THE LOADS SHOWN ON PAGES 4 THROUGH 7 DEPICT MAXIMUM LOADS BASED ON THE SIZE OF THE CARGO AREA AND/OR THE QUANTITY AND LOCATION OF THE TIEDOWN ANCHORS.

2. THE LOAD SHOWN ON PAGE 4 DEPICTS A MAXIMUM QUANTITY CONSISTING OF ONE H1571 STAND, EIGHT H1572 KITS, AND EIGHT M613 CONTAINERS, LOADED ON AN M871 SEMITRAILER. THIS LOAD IS SHOWN IN "ISOMETRIC" AND IS TO BE USED AS GUIDANCE, ALONG WITH THE "TOP VIEWS", WHEN LOADING THE VEHICLES DEPICTED ON PAGES 5 THROUGH 7.

3. THE VEHICLES SHOWN WERE SELECTED AS TYPICAL ONLY. ALL VEHICLES AND/OR TRAILERS OF OTHER DIMENSIONS, WHICH HAVE A SUFFICIENT QUANTITY OF TIEDOWN ANCHORS, MAY BE USED TO TRANSPORT A MAXIMUM LOAD, OR A PARTIAL LOAD.

4. FOR SPECIFIC LOADING PROCEDURES OF THE M753 PROJECTILE IN THE M613 CONTAINER, REFER TO THE APPLICABLE PROCEDURES IN THE TRANSPORTATION SECTION OF TM 9-1110-220-20-1 & 2.

5. WHEN LOADING THE M613 CONTAINERS USE THE TIEDOWN PROCEDURES DEPICTED FOR ONE, TWO, OR THREE CONTAINERS, ON PAGES 8 AND 9, RELATIVE TO ITEM SECUREMENT. THREE CONTAINERS IS THE MAXIMUM QUANTITY THAT CAN BE POSITIONED SIDE-BY-SIDE AND ADEQUATELY SECURED AS SHOWN ON PAGE 9.

6. THE LOADS SHOWN ON PAGES 8 AND 9 DEPICT TESTED METHODS OF TRANSPORTING ONE THROUGH THREE M753 PROJECTILES IN THE M613 CONTAINER. POSITION THE M613 CONTAINER (S) IN THE CENTER OF THE VEHICLE WIDTH AND ALSO CENTERED LONGITUDINALLY BETWEEN THE TIEDOWN FITTINGS ON THE SIDE OF THE VEHICLE TO WHICH THE WEB STRAP TIEDOWN ASSEMBLIES ARE ATTACHED TO. REFER TO THE "ISOMETRIC VIEW" ON PAGE 4, AND THE "TOP VIEWS" ON PAGES 5 THROUGH 7, FOR POSITIONING OF THE M613 CONTAINERS IN/ON THE SPECIFIC VEHICLE BEING LOADED.

7. THE TIEDOWN FITTINGS TO BE USED WITHIN EACH VEHICLE MUST BE SELECTED PRIOR TO LOADING THE M613 CONTAINERS IN/ON THE TACTICAL VEHICLE. THE WEB STRAP TIEDOWN ASSEMBLIES MAY CROSS EACH OTHER, AS SHOWN IN THE LOAD ON PAGE 6 IN ORDER TO ACHIEVE A MAXIMUM QUANTITY LOAD. HOWEVER, TIEDOWN FITTINGS SHOULD BE SELECTED WHICH WILL PROVIDE EQUAL ANGLES TO THE WEB STRAP TIEDOWN ASSEMBLIES. NOTE: THIS IS NOT ALWAYS POSSIBLE WHEN LOADING A MAXIMUM QUANTITY AND TIEDOWN STRAPS HAVING UNEQUAL ANGLES AND/OR LENGTHS ARE ACCEPTABLE.

8. THE H1571 STAND MAY BE LOADED WITH THE 71-1/2" LENGTH POSITIONED ACROSS THE VEHICLE WIDTH, AS SHOWN IN THE LOADS ON PAGES 4 THROUGH 7, OR WITH THE 71-1/2" LENGTH POSITIONED LONGITUDINALLY IN/ON THE VEHICLE. IF THERE IS SUFFICIENT ROOM, TWO WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED TO SECURE EACH H1571 STAND. THESE TWO STRAPS MAY BE CROSSED OVER TOP OF THE H1571 STAND WHEN THE LOCATION OF THE VEHICLE TIEDOWN ANCHORS WILL NOT ALLOW THE STRAPS TO BE POSITIONED STRAIGHT ACROSS, AS SHOWN IN THE 2-1/2-TON SHOP VAN ON PAGE 5. THE H1571 STAND MAY BE POSITIONED ANYWHERE WITHIN THE LENGTH OF THE VEHICLE CARGO AREA.

9. THE H1572 KIT MAY BE LOADED WITH THE 19" LENGTH POSITIONED ACROSS THE VEHICLE WIDTH AND/OR THE 19" LENGTH POSITIONED LONGITUDINALLY IN/ON THE VEHICLE. IN ORDER TO ACHIEVE A MAXIMUM LOAD IT MAY BE NECESSARY TO BUTT TWO H1572 KITS TOGETHER, SIDE-BY-SIDE, AS SHOWN IN THE LOADS ON PAGES 4 THROUGH 7. WHEN BUTTING TWO H1572 KITS SIDE-BY-SIDE, OFF-SET THE KITS SO THE HINGES ARE NOT IN ALIGNMENT AND PLACE ANTI-CHAFING MATERIAL BETWEEN KITS AT ALL POINTS OF CONTACT. CENTER THE KIT (S) ACROSS THE VEHICLE WIDTH AND IN POSITION SO THE HOLD-DOWN WEB STRAP PASSES OVER TOP OF KIT (S), AS NEAR TO CENTER AS POSSIBLE. THE H1572 KIT (S) MAY BE POSITIONED ANYWHERE WITHIN THE LENGTH OF THE VEHICLE CARGO AREA.

(CONTINUED AT RIGHT)

(CONTINUED FROM BOTTOM LEFT)

10. THE RATCHETS ON THE WEB STRAP TIEDOWN ASSEMBLIES MUST BE POSITIONED AS SHOWN IN THE LOAD VIEWS AND/OR STATED IN THE KEY NUMBERS WITH EACH LOAD. SOME WEB STRAP TIEDOWN ASSEMBLIES MUST BE RATCHETED TIGHT, AT THE SAME TIME TO AVOID SLIDING AND/OR TWISTING THE LOAD OUT OF POSITION.

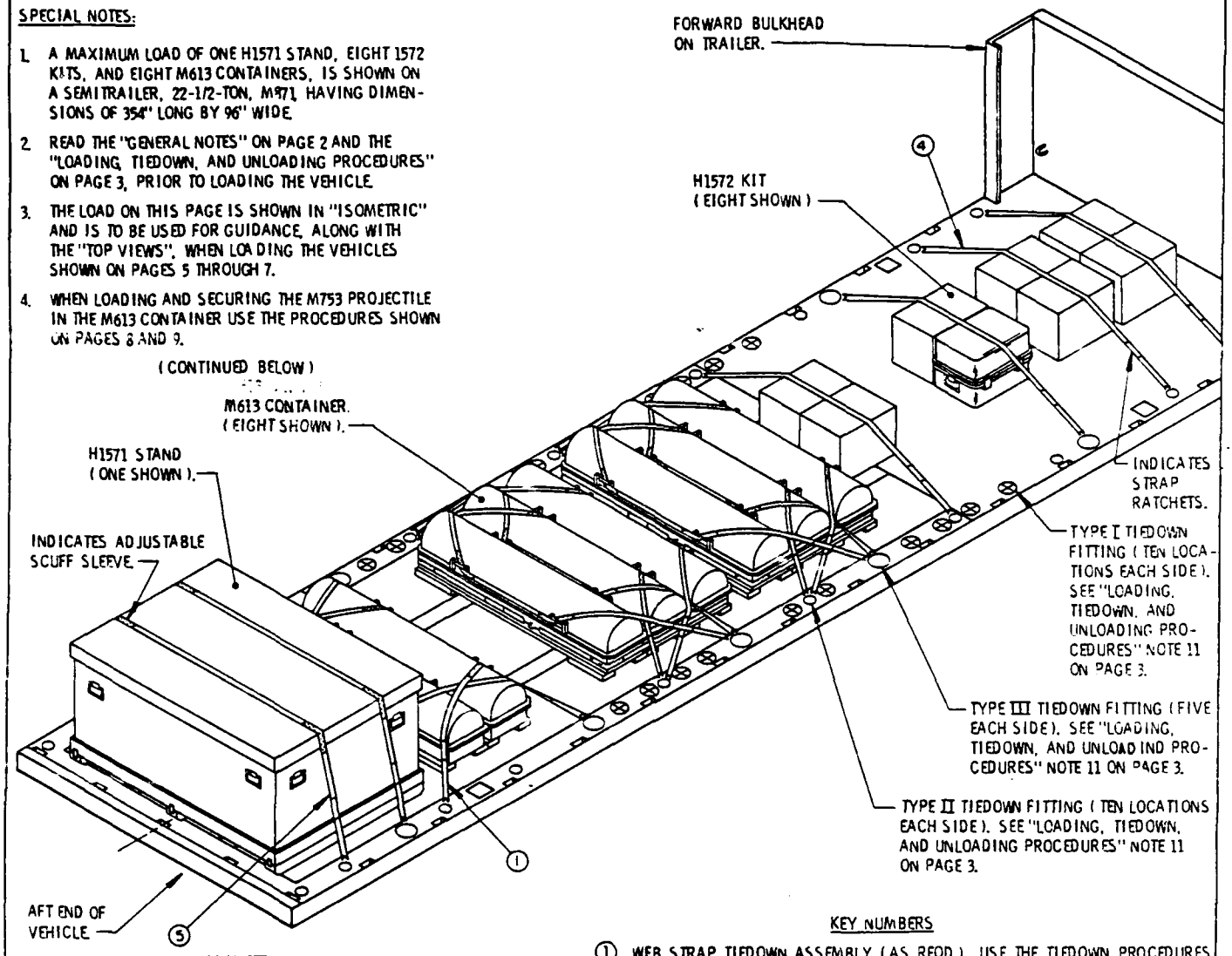
11. THE M871 SEMITRAILER CAN BE EQUIPPED WITH THREE DIFFERENT TYPES OF TIEDOWN FITTINGS AS INDICATED IN THE ISOMETRIC VIEW ON PAGE 4. TYPE I IS A REMOVABLE TIEDOWN FITTING THAT HAS ONE RING AND IS POSITIONED BY REACHING UNDER THE FLOOR OF THE TRAILER, INSERTING THE TIEDOWN FITTING UP THROUGH THE HOLE AND ROTATING IT INTO POSITION (NOTE THAT THIS REMOVABLE TIEDOWN FITTING IS ALSO USED ON THE M872 SEMITRAILER). THERE ARE TEN LOCATIONS FOR THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M871 SEMITRAILER. TYPE II IS A REMOVABLE TIEDOWN FITTING THAT HAS TWO RINGS AND IS POSITIONED BY DEPRESSING A SPRING LOCK LEVER AND INSERTING THE TIEDOWN FITTING INTO A 1-3/4" DIAMETER HOLE FROM THE TOP. ASSURE THAT THE TIEDOWN FITTING IS FIRMLY SEATED AND ROTATED SO THE SPRING LOCK LEVER IS POINTING AWAY FROM THE DIRECTION OF PULL ON THE ATTACHED WEB STRAP TIEDOWN ASSEMBLY. THERE ARE TEN LOCATIONS FOR THESE TIEDOWN FITTINGS ON EACH SIDE OF THE SEMITRAILER. TYPE III IS A FIXED TIEDOWN FITTING THAT HAS ONE RING AND IS RECESSED INTO THE FLOOR. THERE ARE FIVE OF THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M871 SEMITRAILER. THE LOAD SHOWN ON PAGE 4 REQUIRES THE USE OF FOURTEEN TYPE II REMOVABLE TIEDOWN FITTINGS (SEVEN ON EACH SIDE OF THE TRAILER), AND TEN TYPE III FIXED TIEDOWN FITTINGS (FIVE ON EACH SIDE OF THE TRAILER). NO TYPE I TIEDOWN FITTINGS ARE REQUIRED. HOWEVER, TYPE I TIEDOWN FITTINGS MAY BE USED, IF AVAILABLE, WHEN THERE IS AN INSUFFICIENT QUANTITY OF TYPE II TIEDOWN FITTINGS TO SECURE THE LOAD. SEE "TIEDOWN ANCHOR DETAILS" ON PAGE 11.

12. AFTER ALL LOADING PROCEDURES ARE COMPLETED, CHECK ALL WEB STRAP TIEDOWN ASSEMBLIES FOR MAXIMUM TIGHTNESS AND RATCHET TIGHTER, IF REQUIRED, PRIOR TO FOLDING UP AND TAPING THE LOOSE STRAP ENDS. SEE GENERAL NOTE "F" ON PAGE 2.

SPECIAL NOTES:

1. A MAXIMUM LOAD OF ONE H1571 STAND, EIGHT 1572 KITS, AND EIGHT M613 CONTAINERS, IS SHOWN ON A SEMITRAILER, 22-1/2-TON, M871, HAVING DIMENSIONS OF 354" LONG BY 96" WIDE.
2. READ THE "GENERAL NOTES" ON PAGE 2 AND THE "LOADING, TIEDOWN, AND UNLOADING PROCEDURES" ON PAGE 3, PRIOR TO LOADING THE VEHICLE.
3. THE LOAD ON THIS PAGE IS SHOWN IN "ISOMETRIC" AND IS TO BE USED FOR GUIDANCE, ALONG WITH THE "TOP VIEWS", WHEN LOADING THE VEHICLES SHOWN ON PAGES 5 THROUGH 7.
4. WHEN LOADING AND SECURING THE M753 PROJECTILE IN THE M613 CONTAINER USE THE PROCEDURES SHOWN ON PAGES 8 AND 9.

(CONTINUED BELOW)



ISOMETRIC VIEW

(SPECIAL NOTES CONTINUED)

5. A TOTAL OF TWENTY WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ON THIS PAGE.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	8	480 LBS
M613 CONTAINER	8	3,440 LBS
TOTAL WEIGHT		4,406 LBS

KEY NUMBERS

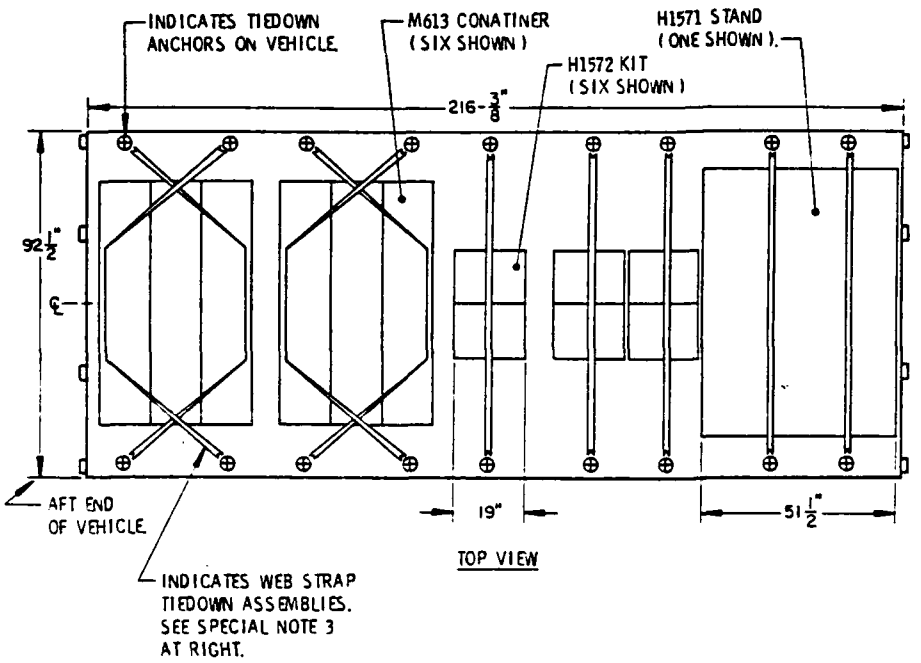
(1) WEB STRAP TIEDOWN ASSEMBLY (AS REQD). USE THE TIEDOWN PROCEDURES SHOWN ON PAGES 8 AND 9 FOR LOADING AND SECURING THE M613 CONTAINERS.

(2) WEB STRAP TIEDOWN ASSEMBLY (AS REQD). USE THE TIEDOWN PROCEDURES SHOWN ON PAGES 8 AND 9 FOR LOADING AND SECURING THE M613 CONTAINERS.

(3) WEB STRAP TIEDOWN ASSEMBLY (AS REQD). USE THE TIEDOWN PROCEDURES SHOWN ON PAGES 8 AND 9 FOR LOADING AND SECURING THE M613 CONTAINERS.

(4) WEB STRAP TIEDOWN ASSEMBLY (4 REQD). POSITION EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON SIDE OF VEHICLE, OVER TOP OF TWO H1572 CONTAINERS, TO A TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE VEHICLE. POSITION STRAP SCUFF SLEEVES AT EDGES OF CONTAINERS. TAKE UP EXCESS SLACK IN STRAP AND THEN RATCHET TIGHT. SEE GENERAL NOTES "F" AND "G" ON PAGE 2, AND LOADING, TIEDOWN AND UNLOADING PROCEDURES, NOTE 9 ON PAGE 3.

(5) WEB STRAP TIEDOWN ASSEMBLY (2 REQD). POSITION EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON SIDE OF VEHICLE, OVER TOP OF THE H1571 CONTAINER, TO A TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE VEHICLE. POSITION BOTH RATCHETS ON THE SAME SIDE OF THE CONTAINER AND POSITION THE STRAP SCUFF SLEEVES AT THE EDGES OF THE CONTAINER. TAKE UP EXCESS SLACK IN STRAPS AND THEN RATCHET TIGHT. SEE GENERAL NOTES "F" AND "G" ON PAGE 2, AND LOADING, TIEDOWN, AND UNLOADING PROCEDURES, NOTE 8, ON PAGE 3.



TOP VIEW

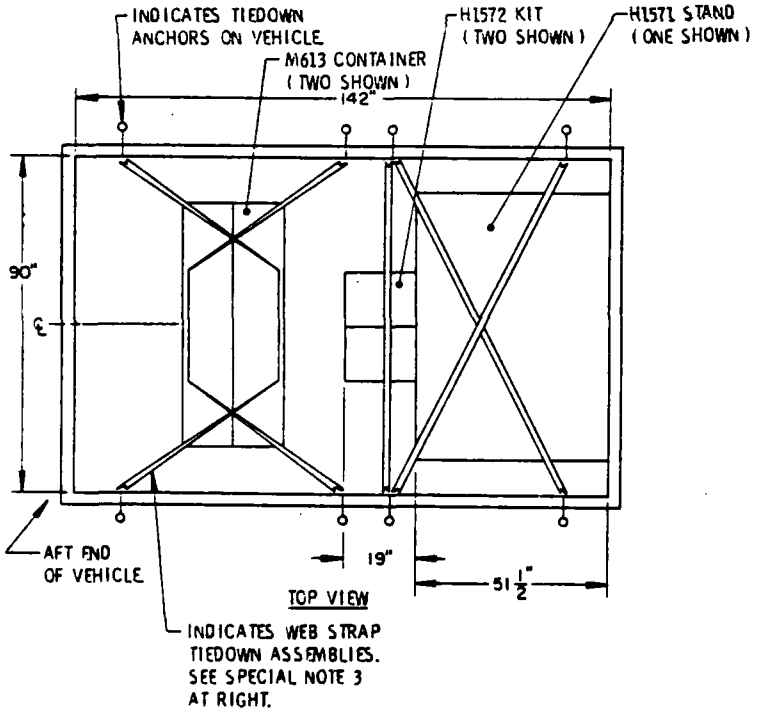
SPECIAL NOTES:

1. A MAXIMUM LOAD OF ONE H1571 STAND, SIX H1572 KITS, AND SIX M613 CONTAINERS, IS SHOWN ON A TRUCK, HEAVY EXPANDED MOBILITY 10-TON, M977 AND/OR M985, HAVING INSIDE DIMENSIONS OF 216-3/8" LONG BY 90-3/4" WIDE.
2. USE THE "TOP VIEW" AT LEFT, AND THE LO[illegible] GUIDANCE ON PAGE 4, FOR LOADING AND TIEDOWN OF THE ITEMS ON THIS VEHICLE.
3. A TOTAL OF FIFTEEN WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN AT LEFT. SEE KEY NUMBERS (1) THRU (5), ON PAGE 4, WHEN INSTALLING STRAPS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	6	360 LBS
M613 CONTAINER	6	2,580 LBS
TOTAL WEIGHT		3,426 LBS

TRUCK, HEAVY EXPANDED MOBILITY (HEMTT), 10-TON, M977 AND/OR M985



TOP VIEW

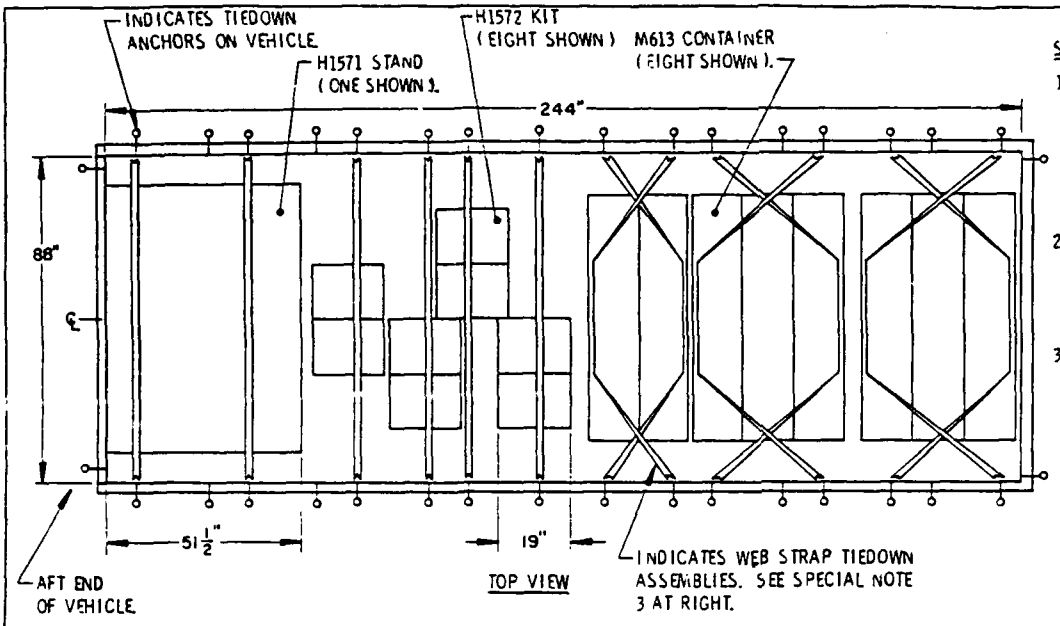
SPECIAL NOTES:

1. A MAXIMUM LOAD OF ONE H1571 STAND, TWO H1572 KITS, AND TWO M613 CONTAINERS IS SHOWN IN A TRUCK, VAN, SHOP 2-1/2-TON, M109, HAVING INSIDE DIMENSIONS OF 142" LONG BY 90" WIDE.
2. USE THE "TOP VIEW" AT LEFT, AND THE LOAD GUIDANCE ON PAGE 4, FOR LOADING AND TIEDOWN OF THE ITEMS ON THIS VEHICLE. IF THE VEHICLE IS NOT EQUIPPED WITH TIEDOWN ANCHORS SEE PAGE 14 FOR VEHICLE MODIFICATION PROCEDURES.
3. A TOTAL OF SEVEN WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN AT LEFT. SEE KEY NUMBERS (1) THRU (5), ON PAGE 4, WHEN INSTALLING STRAPS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	2	120 LBS
M613 CONTAINER	2	860 LBS
TOTAL WEIGHT		1,466 LBS

TRUCK, VAN, SHOP, 2-1/2-TON, M109

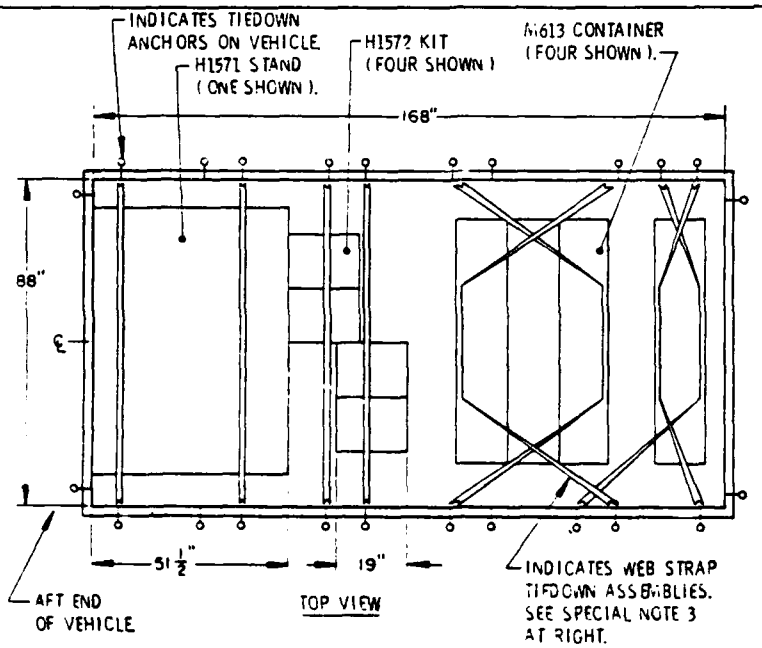


SPECIAL NOTES:

1. A MAXIMUM LOAD OF ONE H1571 STAND, EIGHT H1572 KITS, AND EIGHT M613 CONTAINERS, IS SHOWN ON A TRUCK, CARGO, 5-TON, M55, HAVING INSIDE DIMENSIONS OF 244" LONG BY 88" WIDE.
2. USE THE "TOP VIEW" AT LEFT AND THE LOAD GUIDANCE ON PAGE 4, FOR LOADING AND TIEDOWN OF THE ITEMS ON THIS VEHICLE.
3. A TOTAL OF TWENTY WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN AT LEFT. SEE KEY NUMBERS (1) THROUGH (5), ON PAGE 4, WHEN INSTALLING STRAPS.

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	8	480 LBS
M613 CONTAINER	8	3,440 LBS
TOTAL WEIGHT		4,406 LBS

TRUCK, CARGO, 5-TON, M55

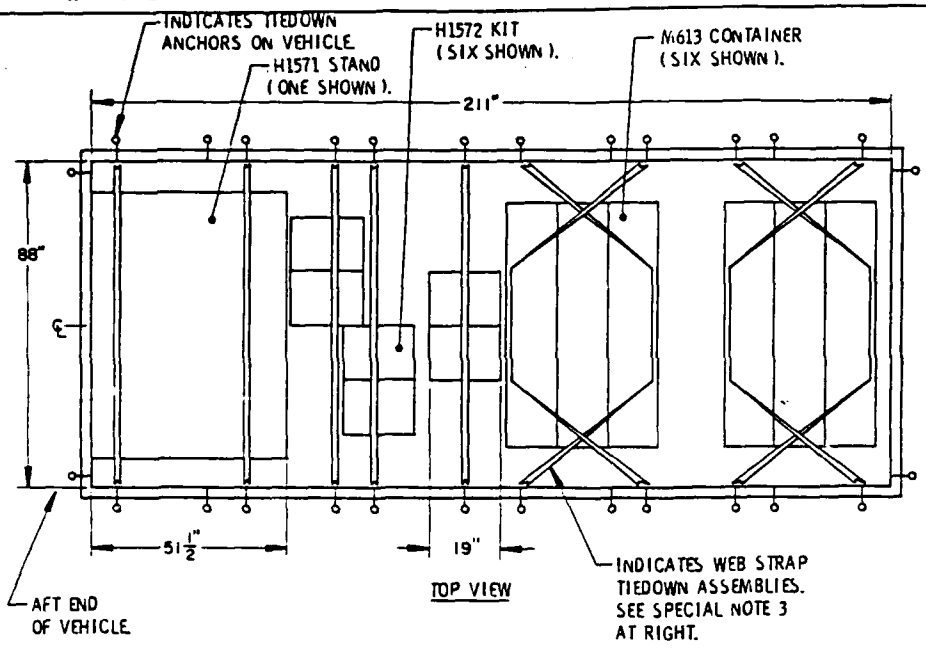


SPECIAL NOTES:

1. A MAXIMUM LOAD OF ONE H1571 STAND, FOUR H1572 KITS, AND FOUR M613 CONTAINERS IS SHOWN ON A TRUCK, CARGO, 5-TON M54, HAVING INSIDE DIMENSIONS OF 168" LONG BY 88" WIDE.
2. USE THE "TOP VIEW" AT LEFT AND THE LOAD GUIDANCE ON PAGE 4, FOR LOADING AND TIEDOWN OF THE ITEMS ON THIS VEHICLE.
3. A TOTAL OF ELEVEN WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN AT LEFT. SEE KEY NUMBERS (1) THROUGH (5), ON PAGE 4, WHEN INSTALLING STRAPS.

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	4	240 LBS
M613 CONTAINER	4	1,720 LBS
TOTAL WEIGHT		2,446 LBS

TRUCK, CARGO, 5-TON, M54



TOP VIEW

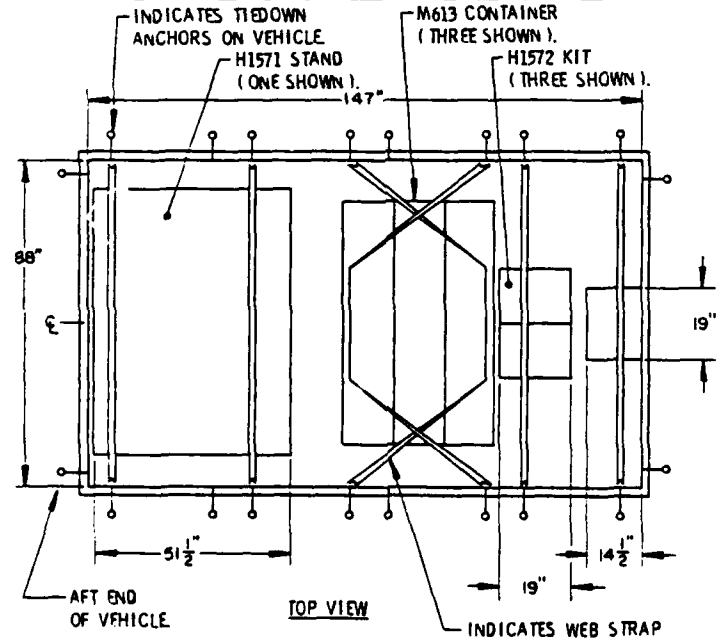
SPECIAL NOTES:

1. A MAXIMUM LOAD OF ONE H1571 STAND, SIX 1572 KITS, AND SIX M613 CONTAINERS IS SHOWN ON A TRUCK, CARGO, 2-1/2-TON, M36 AND/OR M36C HAVING INSIDE DIMENSIONS OF 211" LONG BY 88" WIDE.
2. USE THE "TOP VIEW" AT LEFT AND THE LOAD GUIDANCE ON PAGE 4 FOR LOADING AND TIEDOWN OF THE ITEMS ON THIS VEHICLE.
3. A TOTAL OF FIFTEEN WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN AT LEFT. SEE KEY NUMBERS (1) THROUGH (5), ON PAGE 4, WHEN INSTALLING STRAPS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	6	360 LBS
M613 CONTAINER	6	2,580 LBS
TOTAL WEIGHT		3,426 LBS

TRUCK, CARGO, 2-1/2-TON, M36 AND/OR M36C



TOP VIEW

SPECIAL NOTES:

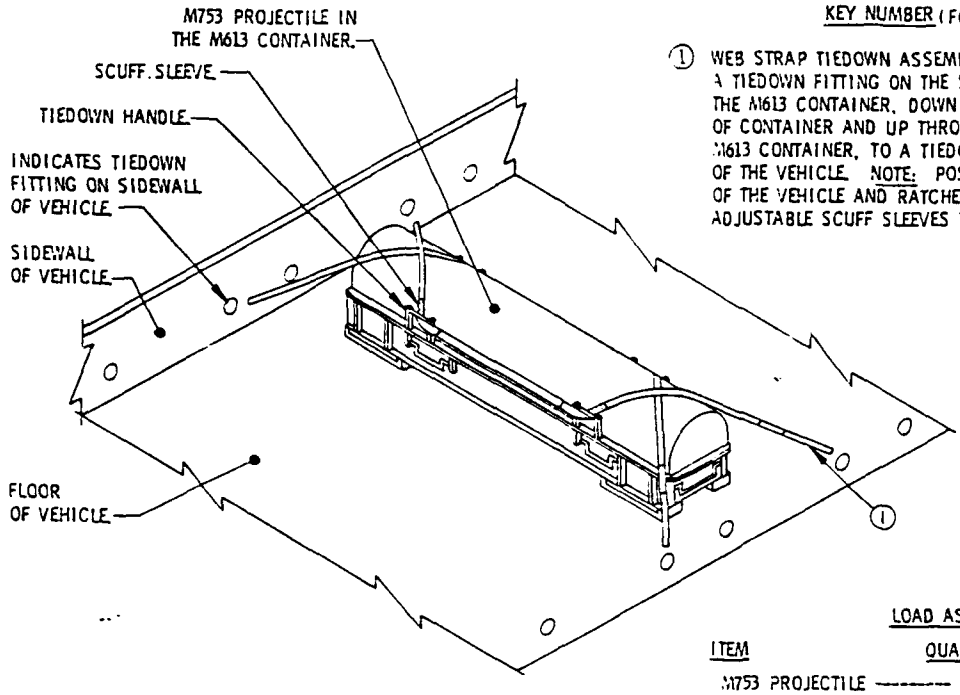
1. A MAXIMUM LOAD OF ONE H1571 STAND, THREE H1572 KITS, AND THREE M613 CONTAINERS IS SHOWN ON A TRUCK, CARGO, 2-1/2-TON, M35 AND/OR M211, HAVING INSIDE DIMENSIONS OF 147" LONG BY 88" WIDE.
2. USE THE "TOP VIEW" AT LEFT AND THE LOAD GUIDANCE ON PAGE 4, FOR LOADING AND TIEDOWN OF THE ITEMS ON THIS VEHICLE.
3. A TOTAL OF NINE WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN AT LEFT. SEE KEY NUMBERS (1) THROUGH (5), ON PAGE 4, WHEN INSTALLING STRAPS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
H1571 STAND	1	486 LBS
H1572 KIT	3	180 LBS
M613 CONTAINER	3	1,290 LBS
TOTAL WEIGHT		1,956 LBS

TRUCK, CARGO, 2-1/2-TON, M35 AND/OR M211

PAGE 7



ONE M613 CONTAINER

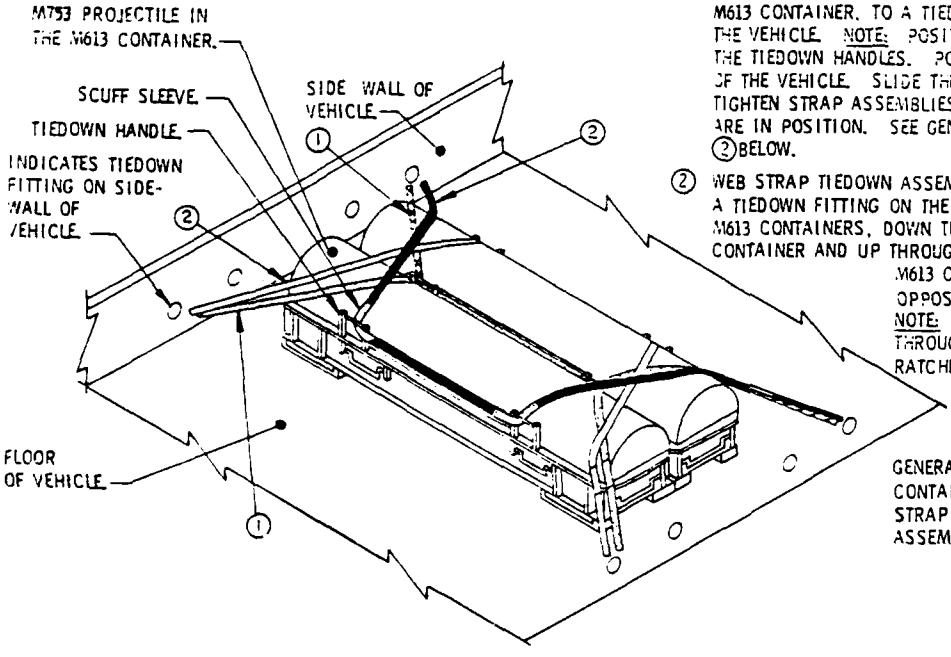
THE VIEW SHOWN ABOVE DEPICTS ONE M753 PROJECTILE IN THE M613 CONTAINER, POSITIONED IN A TRUCK, CARGO, 5 TON, M54. TWO WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED. SEE LOADING, TIEDOWN, AND UNLOADING PROCEDURES, NOTES 6 AND 7, ON PAGE 3.

KEY NUMBER (FOR ONE M613 CONTAINER)

① WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP FROM A TIEDOWN FITTING ON THE SIDEWALL OF THE VEHICLE, OVER TOP OF THE M613 CONTAINER, DOWN THROUGH THE TIEDOWN HANDLE, ALONG SIDE OF CONTAINER AND UP THROUGH THE TIEDOWN HANDLE, OVER TOP OF THE M613 CONTAINER, TO A TIEDOWN FITTING ON THE OPPOSITE SIDEWALL OF THE VEHICLE. NOTE: POSITION BOTH RATCHETS ON THE SAME SIDE OF THE VEHICLE AND RATCHET TIGHT AT THE SAME TIME. POSITION THE ADJUSTABLE SCUFF SLEEVES THROUGH THE TIEDOWN HANDLES AS SHOWN.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M753 PROJECTILE	1	430 LBS



TWO M613 CONTAINERS

THE VIEW SHOWN ABOVE DEPICTS TWO M753 PROJECTILES, IN THE M613 CONTAINERS, POSITIONED IN A TRUCK, CARGO, 5 TON, M54. FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED. SEE LOADING, TIEDOWN, AND UNLOADING PROCEDURES, NOTES 6 AND 7, ON PAGE 3.

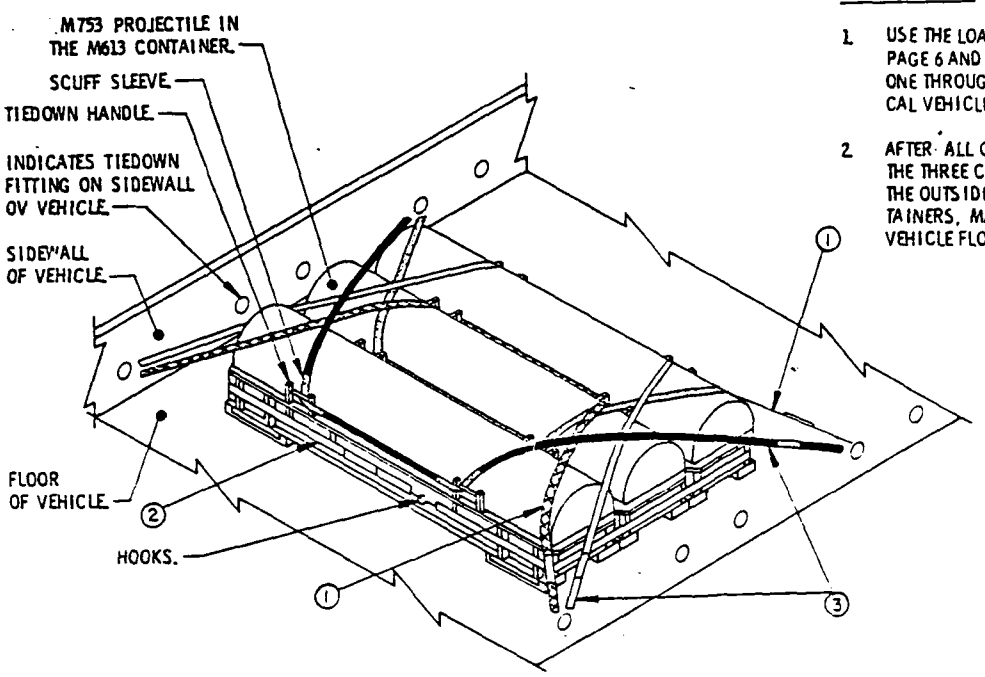
KEY NUMBERS (FOR TWO M613 CONTAINERS)

① WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP FROM A TIEDOWN FITTING ON THE SIDEWALL OF THE VEHICLE, OVER TOP OF THE M613 CONTAINER, DOWN THROUGH THE TIEDOWN HANDLE, ALONG SIDE OF CONTAINER AND UP THROUGH THE TIEDOWN HANDLE, OVER TOP OF THE M613 CONTAINER, TO A TIEDOWN FITTING ON THE OPPOSITE SIDEWALL OF THE VEHICLE. NOTE: POSITION THE ADJUSTABLE SCUFF SLEEVES THROUGH THE TIEDOWN HANDLES. POSITION BOTH RATCHETS ON THE SAME SIDE OF THE VEHICLE. SLIDE THE CONTAINERS TIGHT TOGETHER BUT DO NOT TIGHTEN STRAP ASSEMBLIES MARKED ① UNTIL STRAP ASSEMBLIES ② ARE IN POSITION. SEE GENERAL NOTE "L" ON PAGE 2 AND KEY NUMBER ② BELOW.

② WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP FROM A TIEDOWN FITTING ON THE SIDEWALL OF THE VEHICLE, OVER TOP OF BOTH M613 CONTAINERS, DOWN THROUGH THE TIEDOWN HANDLE, ALONG SIDE OF CONTAINER AND UP THROUGH THE TIEDOWN HANDLE, OVER TOP OF BOTH M613 CONTAINERS, TO A TIEDOWN FITTING ON THE OPPOSITE SIDEWALL OF THE VEHICLE. NOTE: POSITION THE ADJUSTABLE SCUFF SLEEVES THROUGH THE TIEDOWN HANDLES. POSITION BOTH RATCHETS ON THE SAME SIDE OF THE VEHICLE. STRAP ASSEMBLIES MARKED ② WILL BE ATTACHED TO THE SAME TIEDOWN FITTINGS AS STRAP ASSEMBLIES MARKED ①. SEE GENERAL NOTE "L" ON PAGE 2. SECURE ONE M613 CONTAINER AT A TIME BY RATCHETING TIGHT ONE STRAP ASSEMBLY MARKED ① AND ONE STRAP ASSEMBLY MARKED ② AT THE SAME TIME.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M753 PROJECTILE	2	860 LBS



THREE M613 CONTAINERS

THE VIEW SHOWN ABOVE DEPICTS THREE M753 PROJECTILES IN THE M613 CONTAINERS, POSITIONED IN A TRUCK, CARGO, 5 TON, M54. FIVE WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED. SEE LOADING, TIEDOWN, AND UNLOADING PROCEDURES, NOTES 6 AND 7, ON PAGE 3.

SPECIAL NOTES:

1. USE THE LOADING AND TIEDOWN PROCEDURES SHOWN ON PAGE 6 AND THIS PAGE WHEN LOADING AND SECURING ONE THROUGH THREE M613 CONTAINERS IN/ON THE TACTICAL VEHICLES SHOWN ON PAGES 4 THROUGH 7.
2. AFTER ALL OF THE WEB STRAPS HAVE BEEN TIGHTENED, ON THE THREE CONTAINER LOAD SHOWN ON THIS PAGE, THE OUTSIDE SKIDS ON THE TWO OUTSIDE M613 CONTAINERS, MAY BE RAISED UP SLIGHTLY OFF OF THE VEHICLE FLOOR. THIS IS ACCEPTABLE.

KEY NUMBERS (FOR THREE M613 CONTAINERS)

① WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP FROM A TIEDOWN FITTING ON THE SIDEWALL OF THE VEHICLE, OVER TOP OF THE M613 CONTAINER DOWN THROUGH THE TIEDOWN HANDLE ALONG SIDE OF CONTAINER AND UP THROUGH THE TIEDOWN HANDLE, OVER TOP OF THE M613 CONTAINER, TO A TIEDOWN FITTING ON THE OPPOSITE SIDEWALL OF THE VEHICLE. NOTE: POSITION THE ADJUSTABLE SCUFF SLEEVES THROUGH THE TIEDOWN HANDLES. POSITION BOTH RATCHETS ON THE SAME SIDE OF THE VEHICLE. SEE GENERAL NOTE "L" ON PAGE 2 AND LOADING PROCEDURES (a), (b), (c), (d), (e) AND (f) PRIOR TO RATCHETING TIGHT.

② WEB STRAP TIEDOWN ASSEMBLY (1 REQD). INSTALL STRAP TO ENCIRCLE ALL THREE M613 CONTAINERS, JUST ABOVE THE SKIDS AS SHOWN. SEE LOADING PROCEDURES (a), (b), (c) AND (d) PRIOR TO RATCHETING TIGHT.

③ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP FROM A TIEDOWN FITTING ON THE SIDEWALL OF THE VEHICLE, OVER TOP OF ALL THREE M613 CONTAINERS, DOWN THROUGH THE TIEDOWN HANDLE ON THE FAR CONTAINER, ALONG SIDE OF CONTAINER AND UP THROUGH THE TIEDOWN HANDLE ON THE FAR CONTAINER, OVER TOP OF ALL THREE M613 CONTAINERS, TO A TIEDOWN FITTING ON THE OPPOSITE SIDEWALL OF THE VEHICLE. NOTE: POSITION THE ADJUSTABLE SCUFF SLEEVES THROUGH THE TIEDOWN HANDLES. POSITION BOTH RATCHETS ON THE SAME SIDE OF THE VEHICLE. STRAP ASSEMBLIES MARKED ③ WILL BE ATTACHED TO THE SAME TIEDOWN FITTINGS AS STRAP ASSEMBLIES MARKED ①. SEE GENERAL NOTE "L" ON PAGE 2 AND LOADING PROCEDURES (e), (f), AND (g) PRIOR TO RATCHETING TIGHT.

LOADING PROCEDURES: (FOR THREE M613 CONTAINERS)

(a) POSITION ONE M613 CONTAINER IN THE VEHICLE AND CENTER LONGITUDINALLY BETWEEN THE TWO TIEDOWN FITTINGS ON THE SIDEWALL OF THE VEHICLE TO WHICH THE STRAP ASSEMBLIES MARKED ① WILL BE ATTACHED.

(b) POSITION WEB STRAP TIEDOWN ASSEMBLIES MARKED ①. SEE KEY NUMBER ① FOR GUIDANCE, BUT DO NOT RATCHET TIGHT UNTIL LOADING PROCEDURES (c), (d), AND (e) ARE COMPLETED.

(c) POSITION THE TWO REMAINING M613 CONTAINERS IN THE VEHICLE, ONE ON EACH SIDE AND TIGHT AGAINST THE CENTER CONTAINER.

(d) POSITION WEB STRAP TIEDOWN ASSEMBLY MARKED ② AND RATCHET TIGHTLY. SEE KEY NUMBER ② FOR GUIDANCE.

(e) POSITION WEB STRAP TIEDOWN ASSEMBLIES MARKED ③. SEE KEY NUMBER ③ FOR GUIDANCE, BUT DO NOT RATCHET TIGHT UNTIL LOADING PROCEDURE (f) IS COMPLETED.

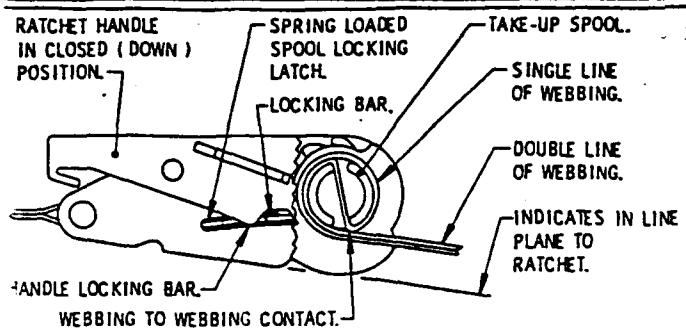
(f) TAKE UP SLACK IN WEB STRAP TIEDOWN ASSEMBLIES MARKED ①. THEN RATCHET TIGHTLY BOTH STRAPS MARKED ① AT THE SAME TIME.

(g) TAKE UP SLACK IN WEB STRAP TIEDOWN ASSEMBLIES MARKED ③. THEN RATCHET TIGHTLY BOTH STRAPS MARKED ③ AT THE SAME TIME. SEE SPECIAL NOTE 2 ON THIS PAGE.

LOAD AS SHOWN

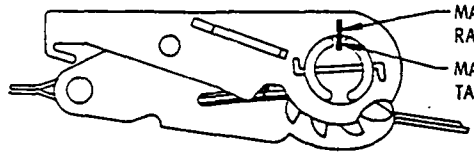
ITEM	QUANTITY	WEIGHT (APPROX)
M753 PROJECTILE	3	1,290 LBS

THREE (3) M753 PROJECTILES



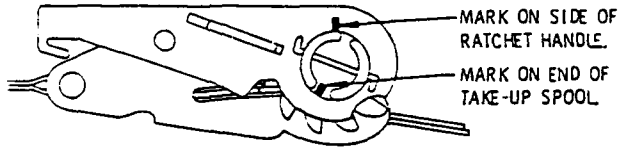
STEP 1

IN THIS VIEW PART OF THE RATCHET HOUSING IS SHOWN BROKEN AWAY TO DEPICT WEBBING-TO-WEBBING CONTACT ON THE TAKE-UP SPOOL OF THE RATCHET. WEBBING-TO-WEBBING CONTACT IS ACHIEVED WHEN THE OPERATOR CLOS THE DOUBLE LINE OF WEBBING IN AN "IN LINE PLANE TO THE RATCHET" AND IT MAKES CONTACT WITH THE SINGLE LINE OF WEBBING.



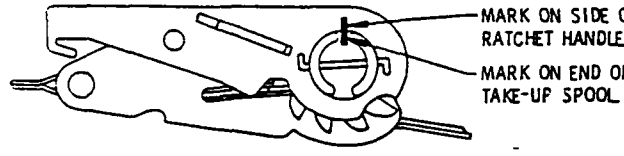
STEP 2

THIS VIEW DEPICTS THE LOCATION OF THE FIXED MARK ON THE RATCHETING HANDLE, WITH ANOTHER MATCHING MARK ON THE END OF THE TAKE-UP SPOOL, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE.



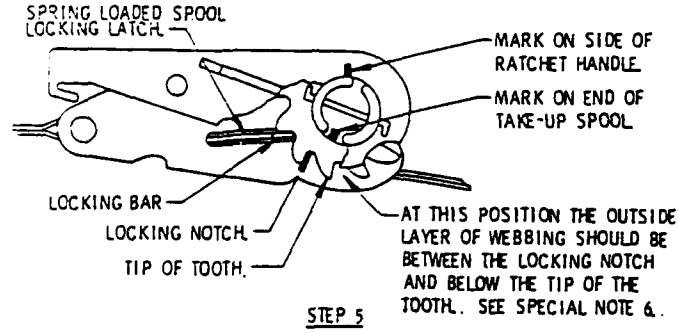
STEP 3

THIS VIEW DEPICTS THE LOCATION OF THE MARK ON THE END OF THE TAKE-UP SPOOL AFTER THE SPOOL HAS BEEN ROTATED ONE-HALF TURN, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE.



STEP 4

THIS VIEW DEPICTS THE LOCATION OF THE MARK ON THE END OF THE TAKE-UP SPOOL AFTER THE SPOOL HAS BEEN ROTATED ONE FULL TURN, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE.



STEP 5

THIS VIEW DEPICTS THE LOCATION OF THE MARK ON THE END OF THE TAKE-UP SPOOL AFTER THE SPOOL HAS BEEN ROTATED ONE AND ONE-HALF TURNS, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE. ALSO IN THIS VIEW, PART OF THE RATCHET HANDLE IS SHOWN BROKEN AWAY TO SHOW THE LOCKING BAR FULLY SEATED IN THE MATCHING LOCKING NOTCH (SPROCKET GEAR TEETH L

SPECIAL NOTES:

1. THE PURPOSE OF THE RATCHET DETAILS ON THIS PAGE, AND OF THESE NOTES, IS TO AUGMENT THE GUIDANCE SET FORTH WITHIN GENERAL NOTE "F" ON PAGE 2.

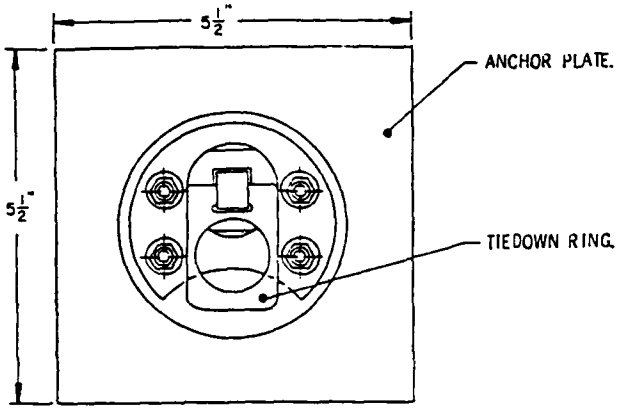
2. THE REQUIREMENT FOR 1/2 BUT NOT MORE THAN 1-1/2 WRAPS OF STRAP ON THE TAKE-UP SPOOL OF THE TENSIONING RATCHET, AS SPECIFIED WITHIN GENERAL NOTE "E" ON PAGE 2, ACTUALLY MEANS 1/2 TO 1-1/2 WRAPS OF DOUBLED WEBBING, THE 1/2 TO 1-1/2 WRAPS REQUIRE THAT THE SPOOL MECHANISM BE ROTATED 1/2 TO 1-1/2 TURNS. ALSO, THE 1/2 TO 1-1/2 WRAPS (TURNS) ARE TO BE ACCOMPLISHED ONLY AFTER ENOUGH WEBBING HAS BEEN WOUND ONTO THE SPOOL TO ACHIEVE A WEBBING TO WEBBING CONFIGURATION, AS SHOWN IN THE "STEP 1" DETAIL ON THIS PAGE.

3. ONE METHOD THAT CAN BE USED TO ENSURE THAT THE 1/2 TO 1-1/2 WRAPS ARE WOUND ONTO THE TAKE-UP SPOOL, AFTER WEBBING TO WEBBING CONTACT HAS BEEN MADE, IS TO PLACE A FIXED MARK (PAINT OR SIMILAR MATERIAL) ON THE SIDE OF THE RATCHETING HANDLE, WITH THE HANDLE IN ITS CLOSED (DOWN) POSITION, AND ANOTHER SHORT MATCHING MARK ON THE END OF THE SPOOL, AS SHOWN IN THE "STEP 2" DETAIL ON THIS PAGE. AS THE SPOOL IS ROTATED TO TENSION A TIE-DOWN STRAP ASSEMBLY, THE NUMBER OF WRAPS (TURNS) CAN BE DETERMINED VISUALLY BY COMPARING THE "MARK" LOCATION ON THE SPOOL TO THE "MARK" LOCATION ON THE RATCHETING HANDLE WITH THE HANDLE IN CLOSED POSITION. SEE THE "STEP 3", "STEP 4", AND "STEP 5" DETAILS ON THIS PAGE.

4. ANOTHER METHOD THAT CAN BE USED TO ENSURE THAT THE 1/2 TO 1-1/2 WRAPS ARE ACHIEVED, AFTER WEBBING TO WEBBING CONTACT HAS BEEN MADE, IS TO COUNT THE AUDIBLE CLICKS MADE BY THE RATCHET ASSEMBLY AS A WEB STRAP ASSEMBLY IS BEING TENSIONED. THE RATCHET ASSEMBLY ON MOST WEB STRAP ASSEMBLIES HAVE 11 TEETH ON THE GEARLIKE DEVICE ON EACH END OF THE TAKE-UP SPOOL. SOME OTHER STRAP ASSEMBLIES HAVE ONLY 9 TEETH. THEREFORE, AFTER INITIAL WEBBING TO WEBBING CONTACT HAS BEEN MADE, ROTATE (TURN) THE SPOOL THROUGH A MINIMUM OF 6 TO A MAXIMUM OF 17 CLICKS (1/2 TO 1-1/2 WRAPS) WHEN THE GEAR HAS 11 TEETH, AND ROTATE (TURN) THE SPOOL THROUGH A MINIMUM OF 5 TO A MAXIMUM OF 14 CLICKS (1/2 TO 1-1/2 WRAPS) IF THE GEAR HAS 9 TEETH.

5. AFTER A STRAP ASSEMBLY HAS BEEN PROPERLY TENSIONED, CARE MUST BE EXERCISED TO ASSURE THAT THE TAKE-UP SPOOL LOCKING LATCH (SPRING LOADED DEVICE WITH A LOCKING BAR ON EACH SIDE OF THE RATCHET ASSEMBLY) IS FULLY SEATED ON BOTH SIDES IN MATCHING LOCKING NOTCHES, WHICH ARE SIMILAR TO SPROCKET GEAR TEETH, THAT ARE LOCATED ON EACH END OF THE TAKE-UP SPOOL SEE "STEP 5" DETAIL ON THIS PAGE. THE LOCKING LATCH IS "FULLY SEATED" WHEN THE HANDLE WILL CLOSE AND THE LOCKING EAR, OR SIMILAR DEVICE ON THE HANDLE, PREVENTS THE ACCIDENTAL WITHDRAWAL OF THE LOCKING LATCH. SEE "STEP 1" DETAIL ON THIS PAGE. IF THE FULLY SEATED CONDITION CANNOT BE ACHIEVED, THE STRAP MUST BE RELEASED AND HAND RETENSIONED AS TIGHT AS POSSIBLE TO ACHIEVE THE FULLY SEATED CONDITION.

6. ANOTHER VISUAL METHOD OF DETERMINING WHEN THERE IS 1/2 TO 1-1/2 WRAPS OF WEBBING ON THE TAKE-UP SPOOL, AFTER INITIAL WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, IS TO LOOK AT THE SPOOL. WHEN A TIEDOWN IS COMPLETE, THE STRAP WEBBING ON THE SPOOL OF THE RATCHET SHOULD BE ABOVE THE LOWER CURVE OF THE LOCKING NOTCH, AND SHOULD BE BELOW THE TIPS OF THE TEETH OF THE RATCHET AS IDENTIFIED IN "STEP 5" ON THIS PAGE. IT SHOULD BE NOTED THAT ANY PROCEDURES THAT ENSURE PROPER TENSIONING ARE ACCEPTABLE AND METHODS ON THE DRAWING ONLY PROVIDE SOME METHODS.



UNIVERSAL TIEDOWN ANCHOR (FRONT VIEW)

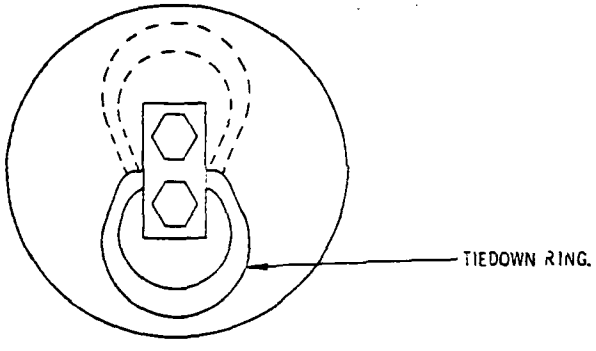
THIS TIEDOWN ANCHOR IS RATED AT 5,000 POUNDS AND IS FOR USE ON CARGO TRUCKS AND/OR CARGO TRAILERS. SEE GENERAL NOTE "D" ON PAGE 2 AND "NOTE ● " AT RIGHT.

NOTE ●:

IF THE TACTICAL VEHICLES BEING USED ARE NOT EQUIPPED WITH THE 5,000 POUND UNIVERSAL TIEDOWN ANCHOR SHOWN AT LEFT, SEE TB 9-2300-290-30 FOR VEHICLE MODIFICATION PROCEDURES AND INSTALLATION OF THE TIEDOWN ANCHOR. WITH THE EXCEPTION OF THE HEAVY EXPANDED MOBILITY TACTICAL TRUCK (HEMTT), M977 AND/OR M985, WHICH HAS THE TIEDOWN ANCHORS INSTALLED IN THE FLOOR, THESE TIEDOWN ANCHORS ARE TO BE INSTALLED IN THE SIDE WALLS AND END WALLS OF CARGO TRUCKS AND CARGO TRAILERS. IF AN M127, 12-TON SEMITRAILER IS BEING USED, SEE INFORMATION IN TB 9-2300-280-30. THE M127 SEMITRAILER REQUIRES A DIFFERENT TYPE OF TIEDOWN ANCHOR.

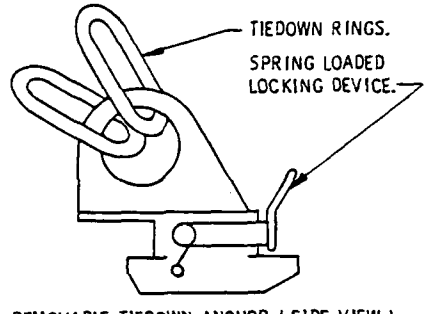
NOTE ⊕:

THIS TIEDOWN IS RATED AT 10,000 POUNDS AND IS ONLY FOR USE ON THE M871 SEMITRAILER. IT IS COMMONLY REFERRED TO AS "BIG FOOT". THERE ARE LOCATIONS FOR TEN TIEDOWN ANCHORS ON EACH SIDE OF THE M871 SEMITRAILER AND THEY SWIVEL. THIS TIEDOWN ANCHOR HAS A SPRING LOADED LOCKING DEVICE TO HOLD IT IN PLACE AND IT IS INSERTED, FROM THE TOP, INTO A 1-3/4" DIAMETER HOLE LOCATED ON THE SIDE OF THE SEMITRAILER FLOOR. SEE GENERAL NOTE "D" ON PAGE 2. THIS TIEDOWN IS FURTHER IDENTIFIED AS NSN 2540-01-117-3043.



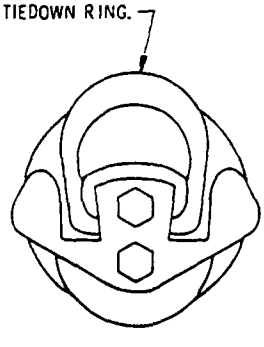
TYPE III. FIXED TIEDOWN ANCHOR (TOP VIEW)

THIS TIEDOWN ANCHOR IS RATED AT 10,000 POUNDS AND IS ONLY INSTALLED ON THE M871 SEMITRAILER. THERE ARE FIVE ON EACH SIDE OF THE M871 SEMITRAILER AND THEY DO NOT SWIVEL. SEE GENERAL NOTE "D" ON PAGE 2.



TYPE II. REMOVABLE TIEDOWN ANCHOR (SIDE VIEW)

(SEE "NOTE ⊕ " ABOVE.)

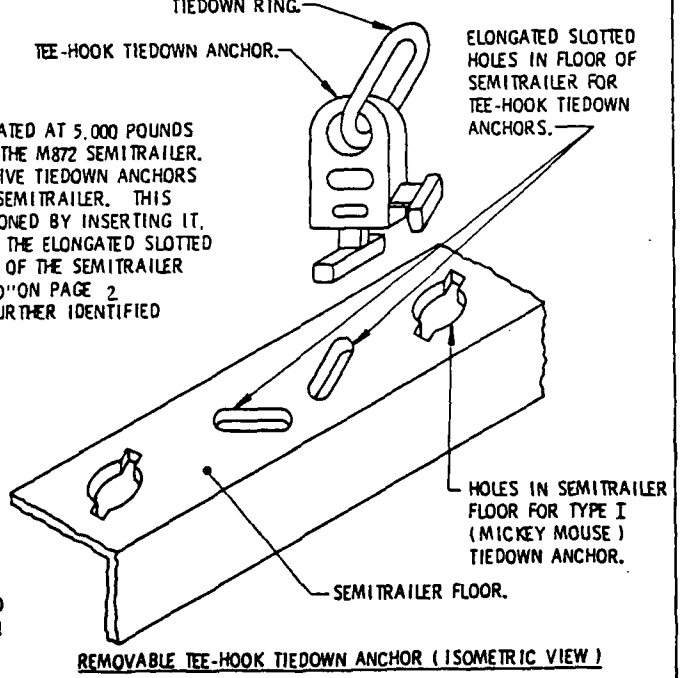


TYPE I. REMOVABLE TIEDOWN ANCHOR (TOP VIEW)

THIS TIEDOWN ANCHOR IS RATED AT 10,000 POUNDS AND IS INSTALLED ON THE M871 AND M872 SEMITRAILERS. IT IS COMMONLY REFERRED TO AS "MICKEY MOUSE". THERE ARE LOCATIONS FOR TEN TIEDOWN ANCHORS ON EACH SIDE OF THE M871 SEMITRAILER AND LOCATIONS FOR APPROXIMATELY TWENTY-EIGHT TIEDOWN ANCHORS ON EACH SIDE OF THE M872 SEMITRAILER. THIS TIEDOWN ANCHOR IS POSITIONED BY REACHING UNDER THE FLOOR OF THE SEMITRAILER AND INSERTING THE TIEDOWN ANCHOR UP THROUGH THE HOLE AND ROTATING IT INTO POSITION. SEE GENERAL NOTE "D" ON PAGE 2. THIS TIEDOWN ANCHOR IS FURTHER IDENTIFIED AS NSN 2540-01-112-1732.

NOTE ▲:

THIS TIEDOWN ANCHOR IS RATED AT 5,000 POUNDS AND IS ONLY INSTALLED ON THE M872 SEMITRAILER. THERE ARE LOCATIONS FOR FIVE TIEDOWN ANCHORS ON EACH SIDE OF THE M872 SEMITRAILER. THIS TIEDOWN ANCHOR IS POSITIONED BY INSERTING IT, FROM THE TOP, INTO ONE OF THE ELONGATED SLOTTED HOLES LOCATED ON THE SIDE OF THE SEMITRAILER FLOOR. SEE GENERAL NOTE "D" ON PAGE 2. THIS TIEDOWN ANCHOR IS FURTHER IDENTIFIED AS NSN 2540-01-113-9285.

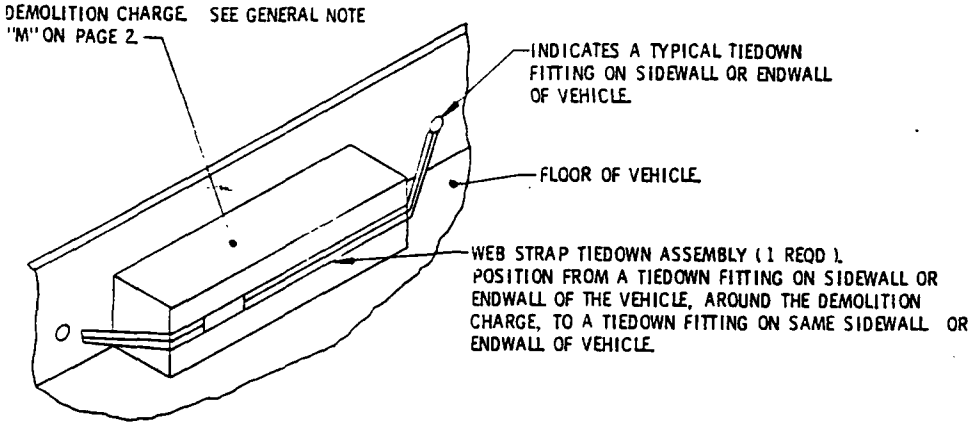


REMOVABLE TEE-HOOK TIEDOWN ANCHOR (ISOMETRIC VIEW)

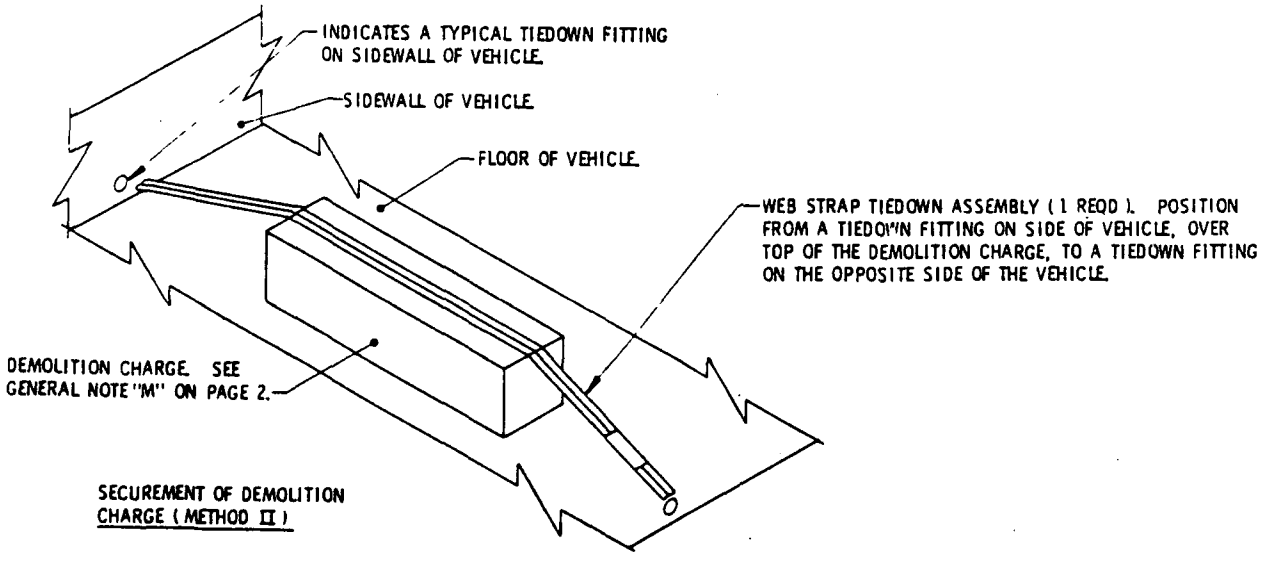
(SEE "NOTE ▲" ABOVE)

TIEDOWN ANCHOR DETAILS

PAGE 11

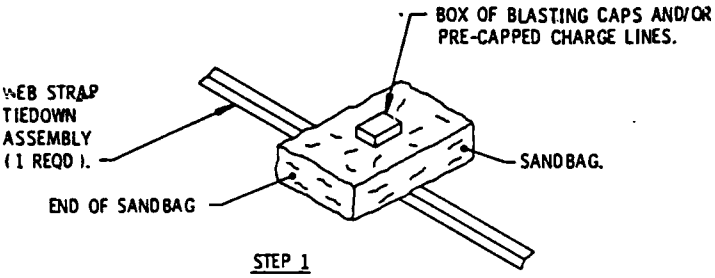


SECUREMENT OF DEMOLITION CHARGE (METHOD I)



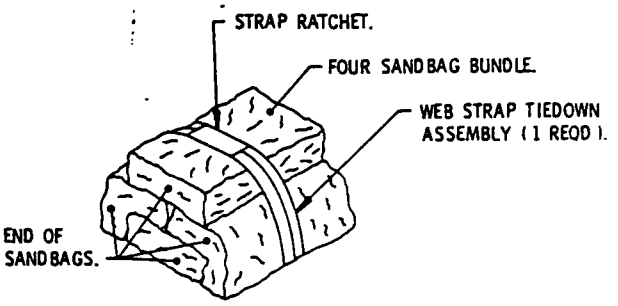
SECUREMENT OF DEMOLITION CHARGE (METHOD II)

NOTE: FOUR (4) SANDBAGS ARE REQUIRED. EACH SANDBAG IS APPROXIMATELY 8-1/2' WIDE BY 16' LONG. FILL TO AT LEAST ONE-HALF BUT NOT MORE THAN THREE-QUARTERS CAPACITY. THE SANDBAGS MUST NOT HAVE ANY TEARS AND THE OPENING END MUST BE TIGHTLY SECURED.



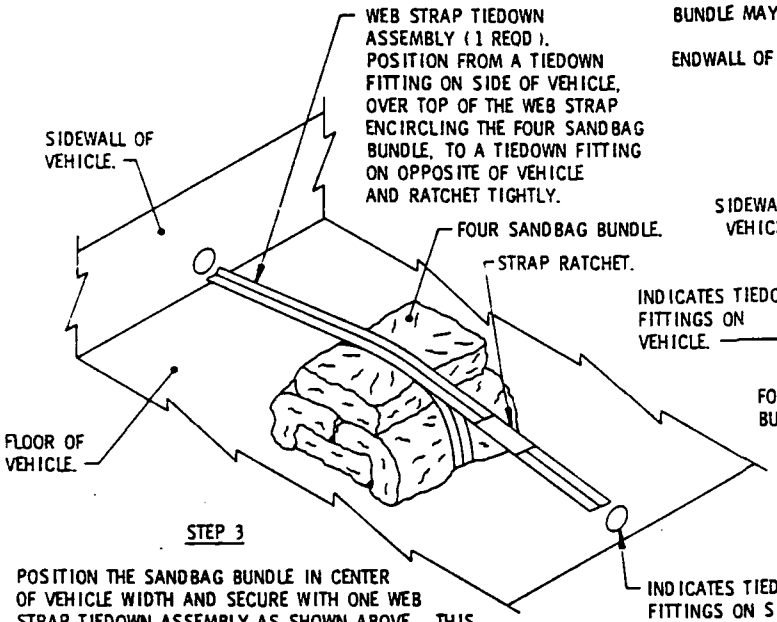
STEP 1

PLACE ONE WEB STRAP TIEDOWN ASSEMBLY ON FLOOR OF VEHICLE. POSITION ONE SANDBAG TO CENTER ON THE STRAP. PLACE THE BOX OF BLASTING CAPS AND/OR PRE-CAPPED CHARGE LINES FLAT SIDE DOWN, AND CENTERED ON TOP OF THE SANDBAG. PRESS DOWN SLIGHTLY ON TOP OF THE BOX TO "SEAT" IT IN POSITION.



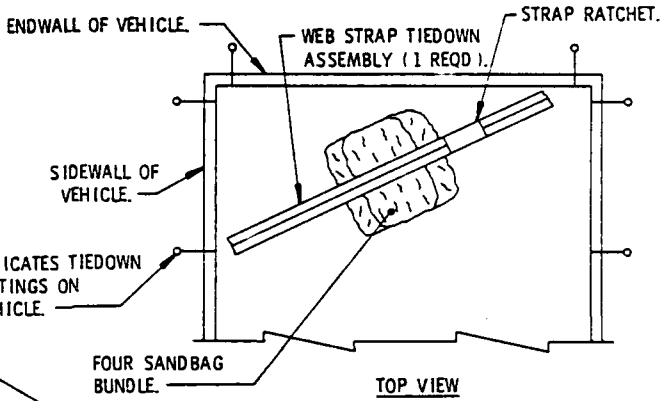
STEP 2

PLACE ONE SANDBAG ON EACH SIDE, FORMING THEM TO FIT AGAINST AND AROUND THE BOX, AND ONE SANDBAG ON TOP. BRING STRAP OVER TOP OF SANDBAGS, HOOK ENDS TOGETHER AND RATCHET UNTIL STRAP IS SNUG. MAKE ADJUSTMENTS TO STRAP WHILE RATCHETING SO THE RATCHET WILL REMAIN ON TOP OF THE FOUR SANDBAG BUNDLE AS SHOWN ABOVE. THIS BUNDLE MAY BE "SLID" INTO FINAL POSITION ON THE VEHICLE FLOOR.



STEP 3

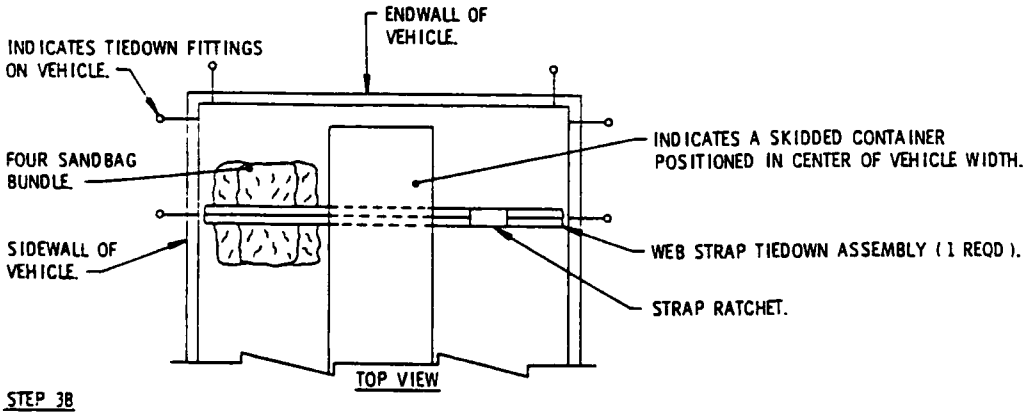
POSITION THE SANDBAG BUNDLE IN CENTER OF VEHICLE WIDTH AND SECURE WITH ONE WEB STRAP TIEDOWN ASSEMBLY AS SHOWN ABOVE. THIS METHOD MAY BE USED IN/ON ANY TACTICAL VEHICLE. FOR VARIATIONS OF THIS METHOD, SEE STEP 3A AND STEP 3B ON THIS PAGE.



TOP VIEW

STEP 3A

THE FOUR SANDBAG BUNDLE MAY BE POSITIONED AS SHOWN ABOVE WITH ONE WEB STRAP TIEDOWN ASSEMBLY ATTACHED TO A TIEDOWN FITTING ON THE SIDE OF THE VEHICLE, OVER TOP OF THE FOUR SANDBAG BUNDLE, TO A TIEDOWN FITTING ON THE END OF THE VEHICLE. RATCHET STRAP TIGHTLY.



TOP VIEW

STEP 3B

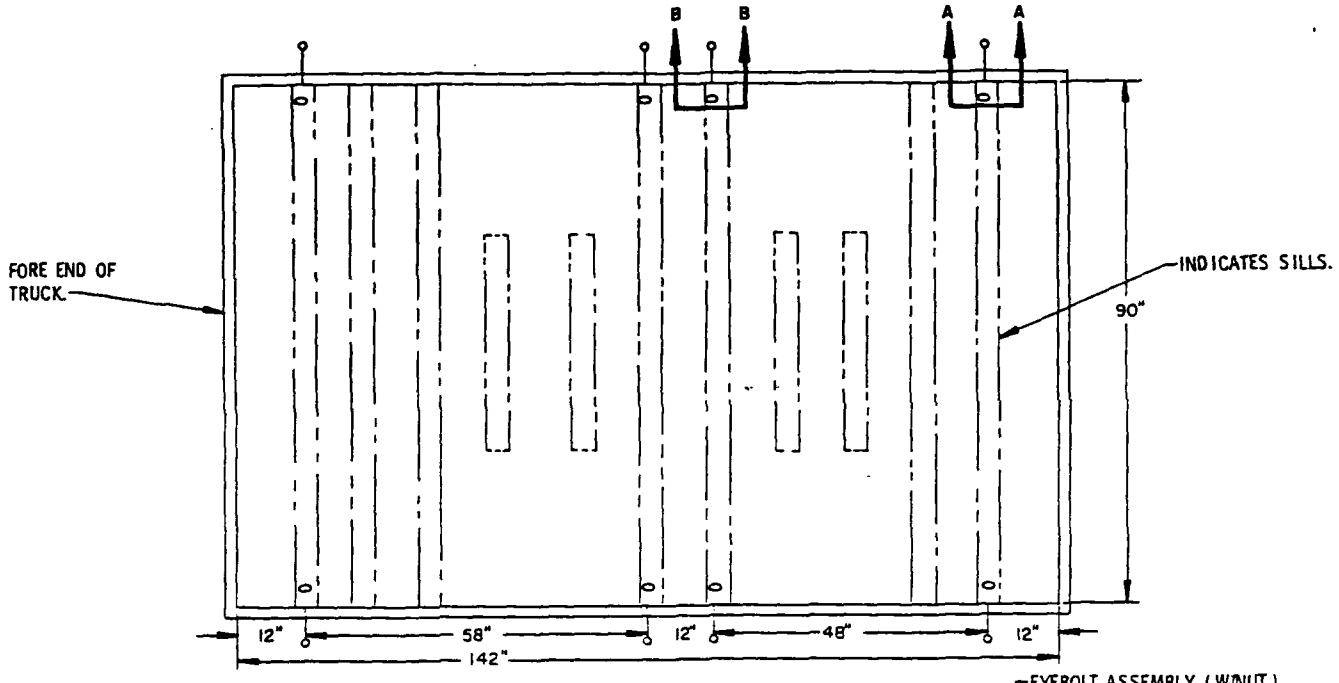
THE FOUR SANDBAG BUNDLE MAY BE POSITIONED BETWEEN A CONTAINER AND THE SIDE OF A VEHICLE, AS SHOWN ABOVE, WITH ONE WEB STRAP TIEDOWN ASSEMBLY ATTACHED TO A TIEDOWN FITTING ON THE SIDE OF THE VEHICLE, OVER TOP OF THE FOUR SANDBAG BUNDLE, UNDER THE CONTAINER, TO A TIEDOWN FITTING ON THE OPPOSITE SIDE OF THE VEHICLE. RATCHET STRAP TIGHTLY.

NOTE⊕:

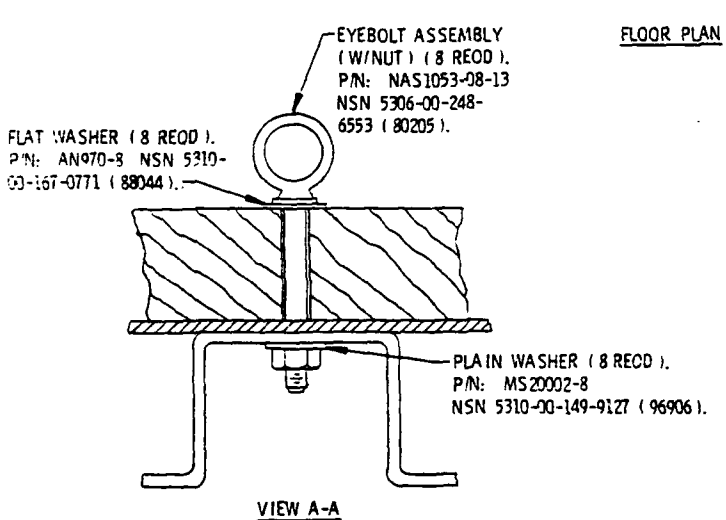
THE PROCEDURES SHOWN ON THIS PAGE PROVIDE THE MINIMUM TIEDOWN REQUIREMENTS FOR THE BLASTING CAPS AND/OR PRE-CAPPED CHARGE LINES CONTAINED IN THE 10-CAP BOX UP TO A CONTAINER THE SIZE OF AN M2 CAN, WITHOUT USING DUNNAGE OR BOXES. HOWEVER, IT IS ACCEPTABLE IF AN ORGANIZATION CHOOSES TO DEVELOP AND USE A MORE ELABORATE METHOD, SUCH AS POSITIONING THE BOXED CAPS AND/OR PRE-CAPPED CHARGE LINES INTO A LARGER BOX IN SUCH A MANNER THAT THE INNER BOX OF CAPS/LINES IS COMPLETELY SURROUNDED BY SAND BAGS, AND THE OUTER BOX IS SECURED IN/ON THE VEHICLE WITH ONE OR MORE WEB STRAP TIEDOWN ASSEMBLIES TO PREVENT MOVEMENT.

SECUREMENT OF BLASTING CAPS AND/OR PRE-CAPPED CHARGE LINES

PAGE 13

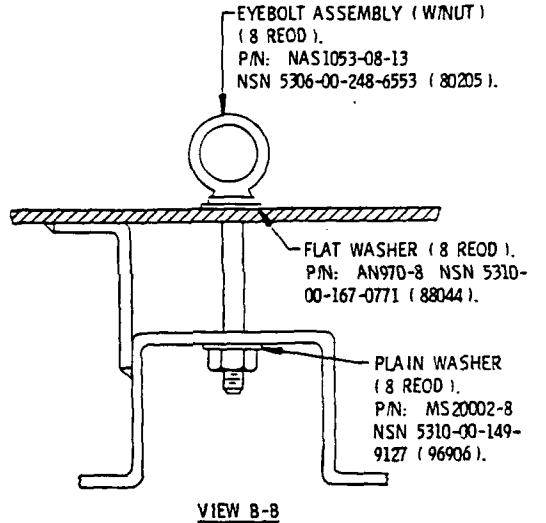


FLOOR PLAN



VIEW A-A

TYPICAL WOOD FLOOR INSTALLATION.



VIEW B-B

TYPICAL METAL FLOOR (WHEEL WELL) INSTALLATION.

MODIFICATION PROCEDURES

1. IF THE VAN IS REQUIRED FOR TRANSPORTATION PURPOSES, IT SHALL BE MODIFIED USING COMPONENTS SPECIFIED HEREIN. MODIFICATION OF VAN WILL BE ACCOMPLISHED BY ORGANIZATIONAL UNITS AS REQUIRED.

2. THE FLOOR PLAN SHOWS LOCATION IN WHICH EYEBOLTS MAY BE LOCATED. LOCALLY DEVELOPED TIEDOWN EQUIPMENT WILL BE REMOVED FROM VANS. EXISTING ASSEMBLY EQUIPMENT PRESENTLY INSTALLED MAY BE RELOCATED SO THAT IT DOES NOT INTERFERE WITH THE LOAD.

3. INSTALLATION AND REMOVAL OF EYEBOLTS.

   A. ON WOOD FLOOR, REMOVE THE EXISTING ROUND HEAD BOLTS AT DESIRED LOCATIONS. (SEE FLOOR PLAN).

   B. REMOVE UNDERCOATING FROM FLOOR SILL MEMBERS AT LOCATIONS TO BE DRILLED.

   C. REMOVE METAL PLATE FASTENED UNDERNEATH THE FLOOR SILL MEMBERS, LOCATED ABOVE THE EXHAUST PIPE.

(CONTINUED AT RIGHT)

(MODIFICATION PROCEDURES CONTINUED)

   D. REDRILL HOLES TO 1/2 INCH DIA. IN WOOD FLOORS. ON METAL FLOOR (WHEEL WELL), DRILL A 1/2 INCH DIA. HOLE, CENTERED ON SILL MEMBER AND LOCATED IN LINE WITH PREVIOUSLY DRILLED HOLES IN WOOD FLOOR.

   E. INSTALL EYEBOLTS IN DRILLED HOLES AS DEPICTED BY VIEW A-A OR VIEW B-B AS APPLICABLE. ADD PLAIN WASHERS AS REQUIRED TO ASSURE A TIGHT FIT. LIGHTLY COAT THREADS OF NUT WITH SEALING COMPOUND, MIL-S-22473, GRADE E, NSN 8030-00-081-2329. TORQUE NUTS TO 36 ±3 FOOT-POUNDS.

   F. LIGHTLY COAT WITH CORROSION PREVENTIVE COMPOUND, NSN 8030-00-231-2345. THE EXPOSED METAL OF THE SILL MEMBER WHERE UNDERCOATING HAS BEEN REMOVED, AND THE NUT, WASHER AND EXPOSED THREADS OF EYEBOLT.

   G. REINSTALL METAL PLATE PREVIOUSLY REMOVED (NOTE C) ABOVE EXHAUST PIPE.

   H. EYEBOLTS NEED NOT BE REMOVED, EXCEPT WHEN NECESSARY DUE TO ASSEMBLY OPERATIONS, OR WHEN DIRECTED BY THE COMMANDING OFFICER.

   J. PLUG, BUTTON (NSN 5340-00-205-5244) MAY BE INSTALLED IN HOLES WHEN EYEBOLTS ARE REMOVED.